ANNUAL REPORT

ON THE

HEALTH OF BLACKPOOL

FOR 1896.

BY

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With the Medical Officer of Health's Compliments.

Blackpool:
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1897.

To the Mayor Aldermen and Burgesses of the Borough of Blackpool.

MR. MAYOR AND GENTLEMEN,

I have the honour to present to you my Sixth Annual Report on the Health of Blackpool, containing an account of the work of the Sanitary Department during the year 1896.

The death-rate was only 13·84, being the lowest since the year 1888, with the exception of that in 1894.

I have again to thank the various members of the Sanitary Department for the care, attention, and loyalty with which they have endeavoured to carry out your and my instructions, and to secure the object in view, namely, to perfect the sanitary administration of the town.

There are still many shortcomings, and to bring these more prominently forward for discussion I have ventured to summarise the various recommendations I have to offer as conclusions at the end of the Report.

I am, Mr. Mayor and Gentlemen,

Your obedient Servant,

A. JASPER ANDERSON,

Medical Officer of Health.

Public Health Office, Blackpool,
February, 1897.

REPORT.

1.—VITAL STATISTICS.

A.—Summary.

	1895.	1896.
Area of Borough (exclusive of foreshore)....		3,495 acres
Population (Census April 6th, 1891).....................		23,846 persons
Persons per House as per Census...................... .		4·84
Rateable Value (General District Rate).........	£230,101	£252,153
Do. (Borough Rate).....................	£238,268	£260,252
No. of Dwelling-Houses on Rate Book.........	6,888	7,689
Do. do. do. empty	77	123
Population of Residents estimated at middle of year from No. of inhabited houses...	32,943	36,638
Density of Population (persons per acre)........	9·43	10·48
Birth-rate (per 1,000 inhabitants)................	26·77	25·66
Death-rate (gross) Do.	20·06	17·19
Infant Mortality (per 1,000 births)...............	206·3	158·5
Zymotic-rate (per 1,000 inhabitants)............	3·31	1·99
Death-rate (corrected for Visitors)................	16·33	13·84
Do. (corrected for age and sex distribution; factor 1·129)....................	18·44	15·62
Infant Mortality (corrected for visitors)..........	191·6	145·7
Zymotic-rate (corrected for visitors)...............	2·82	1·66

B.—Population.

The population has been estimated, as in former years, by multiplying the number of inhabited houses in each of the six wards of the town by the average number of persons per house for each ward as given by the last census. This gives the population for each ward, and their sum is the population of the town.

The accuracy with which this estimate is made controls that of all the rates deduced therefrom. The difficulties of making a correct estimate increase with the number of years that have elapsed since the last census year. But so long as the estimates are made each year on the same basis, and there is no alteration in the character of the population, the various birth and death rates of the town for the different years will be comparable *inter se*, extreme caution being taken, however, before making comparisons with the corresponding rates of other districts.

There were in August, 1896, 7,566 inhabited houses, and a resident population (excluding visitors staying in the town) of 36,638. All rates in this report, unless otherwise stated, are calculated upon this estimated population. There were 801 more houses on the rate-book in 1896 than in 1895. The population for 1896 would have been 31,271, had the rate of increase of the town since 1891 been equal to the rate between 1881 and 1891.

The increase of population over the previous year has been 3,695, made up of 310 (the *natural increase*, excess of births over deaths), and 3,385, the excess of immigrants into, over emigrants from, the Borough.

The greatest increase (999) has taken place in Foxhall Ward, and the next (935) in Claremont Ward; whilst there is again a slight decrease in Bank Hey Ward. Foxhall is now the most populous ward.

C.—BIRTHS.

During the year 930 births occurred in the Borough, but to these must be added as belonging thereto 10 births in the Kirkham Workhouse, *i.e*, 940 births (448 males and 492 females). The birth-rate was 25·66, as compared with 26.77 last year, and 23 91 for the quinquennium 1891-1895. For England and Wales the rate during 1896 was 29·7, and for the 33 Great Towns 30·7. The births include 48 illegitimate children, viz., 27 boys and 21 girls. The percentage of illegitimate births of total births was 5·11, and the rate of illegitimate births was 1·31 per 1,000 inhabitants.

D.—Deaths.

The deaths registered during the year were 630; and of these 123 occurred amongst persons staying temporarily in the town, and belonging to a population not included in the estimate of 36,638 persons. There were, therefore, 507 deaths amongst residents during the year—including 10 deaths in Kirkham Workhouse and elsewhere, out of the Borough. The gross death-rate was 17·19, and the rate amongst residents was 13·84. The gross and corrected death-rates are the lowest since 1888, with the exception of the year 1894, when they were 15·8 and 11·9 respectively. The death-rate corrected for age-and-sex distribution, to render it comparable with the Registrar General's rates for other districts was 15·62.

The death-rate for England and Wales during 1896 was 17·1, and for the 33 great towns 18·9. The death-rate for the 67 other large towns was 17·3, and for England and Wales, less the 100 towns, 15·8 per 1000.

The population and the rates of the six wards of the town are given in the following table, the population of each ward being calculated on the number of the inhabited houses. The average of the rates for the five years 1891-5 are given for comparison.

TABLE I.

Ward.	Population.	Birth-rate		Death rate.		Zymotic Rate	
		1896	1891-5	1896	1891-5	1896	1891-5
Claremont	5521	25·36	24·06	11·59	14·05	0·905	2·07
Talbot	9102	32·41	29·09	17 58	17·37	1·97	2·18
Bank Hey	2291	15·71	11·87	10·91	12·84	0·873	1·29
Brunswick	5881	21·25	21·32	14·11	14·54	1·87	1·15
Foxhall	9208	26·72	25·65	12·92	14·84	2·06	1·98
Waterloo......	4635	18·99	20·76	11 87	15·19	1·27	1·75

The order of the birth-rates is the same both for 1896 and the quinquennium 1891-95, viz., Talbot, Foxhall, Claremont, Brunswick, Waterloo, and Bank Hey, varying from 29·09 in Talbot, to 11·87 in Bank Hey, for 1891-95.

For 1896 the order of the wards for death-rates starting with the highest, is Talbot, Brunswick, Foxhall, Waterloo, Claremont, and Bank Hey. The order for the years 1891-95 is only altered in that Waterloo and Brunswick exchange places.

The death-rates from the principal zymotic diseases cause the wards to be arranged as follows : Foxhall, Talbot, Brunswick, Waterloo, Claremont, and Bank Hey for 1896 ; and Talbot, Claremont, Foxhall, Waterloo, Bank Hey, and Brunswick, for the years 1891-95.

DEATHS IN CERTAIN AGE-GROUPS.

The death-rates per 1,000 *persons living within five definite age-groups* have been calculated, as also the rates for a thousand of each sex living within these limits, and are given in Table C in the Appendix.

Of a thousand children under five years 50 died, as compared with 71 in 1895, and 44 in 1894. Males died in the proportion of 52 to 48 females.

In the age-group over 5 and under 25 years the death-rate was 2·55, as compared with 2·46 in 1895. There is not the usual dis-proportion between the rates for males and females.

The death-rate of persons over 25 and under 65 years was 10·02, as compared with 11·73 in 1895. The rate for males was 12·5 and for females 8·2.

In the age-group over 65 and under 75 years the death-rate was 69, as compared with 53·8 in 1895 ; males dying in the proportion of 74 to 69 females.

For those over 75 years of age the death-rate was 124·6, as compared with 142·3 in 1895; males dying in the ratio of 160 to 98 females.

DEATHS OF VISITORS.

In health resorts it is necessary to deduct from the total deaths those occurring amongst persons staying in the town. Each death is inquired into, and after that inquiry a decision is come to as to whether the deceased was a visitor or not. In 1896 it was decided to exclude 123 deaths as those of visitors, viz., 67 males and 56 females. Twenty-five of these were under five years of age, and 98 above. There were 14 deaths from phthisis, 15 from respiratory diseases, 10 from heart disease, and 9 from injuries, amongst these deaths. There were 12 deaths from the seven zymotic diseases, in some of which cases either infection or invasion of the disease had taken place before arriving in the town.

LENGTH OF RESIDENCE IN BLACKPOOL OF PERSONS WHO DIED DURING THE YEAR 1896.

As usual I have prepared Table II. to show the length of time persons who died in 1896 had lived in Blackpool, classifying the same into six age-groups.

TABLE II.

Length of Residence of Persons who died during the year 1896.

Age Group.	Deaths.	Length of Residence in Blackpool.															Born in Blackpool.
		7 days and under.	14 to 7 days.	1 month to 14 days	3 months to 1 month	6 months to 3 months.	9 months to 6 months.	12 months to 9 months.	2 to 1 year.	3 to 2 years.	4 to 3 years.	5 to 4 years.	15 to 5 years.	25 to 15 years	Over 25 years	Indefinite.	
Under twelve months	149	4	3	1	1	3	...	...	...	...	...	...	...	...	...	...	137
1 year and under 5	58	2	2	4	3	2	3	1	3	1	1	...	...	...	...	...	36
5 and under 15	27	...	2	...	...	1	...	...	1	2	1	4	3	...	...	...	13
15 and under 25.........	20	3	1	2	...	1	...	...	2	1	...	...	1	1	...	2	6
25 and under 65..................	242	24	8	7	12	21	4	...	10	8	14	6	49	30	27	6	16
65 and over	134	3	4	3	5	2	...	...	5	4	6	3	41	25	17	4	12
Totals.....................	630	36	20	17	21	30	7	1	21	16	22	13	94	56	44	12	220

INFANT MORTALITY.

There were 149 deaths of children under twelve months of age, and 940 births, *i.e.*, a rate of 158·5 per 1,000 births, as compared with 206·3 in 1895, 159 in 1894, and 210·3 in 1893.

Of the 149 deaths, 12 were of children not born in Blackpool. Leaving these out of consideration the corrected rate is 145·7, as compared with the corresponding rates for 1895 of 191·6, 132 for 1894, and 169·1 for the five years 1891-5. (See Table V. for the complete figures).

From these figures it will be seen that the infant mortality is much less than the average, although it has been less during two recent years.

This low death-rate amongst infants is to a great extent due to the months of August and September having a lower temperature than the average; whilst the temperature of the earth-thermometer at 4 feet, which behaved exactly similar as in the previous year, fell rapidly during the eleventh week of the third quarter, *i.e.*, a fortnight earlier than usual. (See Chart I).

In Table F (in the Appendix) the quarterly rates are given, from which the rate is seen to be 194 in the third quarter, 147 in the fourth, 124 in the first, and 111 in the second.

For 1895, the corresponding rates were 254 in the third quarter, 210 in the fourth, 176 in the second, and 120 in the first.

During 1896 in England and Wales, 148 infants under 1 year old died out of 1,000 births. For the 33 great towns, the rate of infant mortality in 1896 was 167, ranging from 135 at Brighton, 142 at Bristol, 143 at Bradford, and 149 at Halifax, to 197 at Birmingham, 199 at Salford, and 203 at Preston.

The causes of death are classified in the adjoining table under several headings, and also according to the age at death. As in previous years 'Congenital Debility' and 'Asthenia' have been classified under premature birth, and 'Marasmus' under Atrophy.

TABLE III.—DEATHS, with AGES and CAUSES, of Children under 12 months old in 1896.

CAUSES OF DEATH.	1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	1st week.	2nd week.	3rd week.	4th week.	AGES BY MONTHS.												TOTAL.
												1st mnth	2nd do.	3rd do.	4th do.	5th do.	6th do	7th do.	8th do.	9th do.	10th do.	11th do.	12th do.	
Premature Birth	9	3	5	...	...	...	1	18	3	3	...	24	1	2	...	...	...	...	...	...	...	...	...	27
Atelectasis	1	...	...	...	...	...	1	2	1	1	...	4	...	...	...	...	...	...	...	...	...	...	...	4
Congenital Malformations	2	...	...	...	...	...	...	2	...	1	...	3	1	1	...	...	1	...	2	...	...	...	...	8
Whooping Cough	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	1	3
Measles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	2
Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
Enteritis	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	1	...	3
Diarrhœal Diseases	...	...	...	...	...	...	...	...	2	1	1	4	1	2	3	1	2	2	4	...	1	...	2	22
Erysipelas	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Syphilis	...	...	...	...	...	...	...	...	...	1	...	1	...	2	...	...	...	...	...	...	...	...	...	3
Liver Diseases	...	...	...	...	...	...	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Dentition	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases of Digestive Organs	...	...	...	...	...	...	...	...	...	1	...	1	1	...	...	...	...	...	...	...	...	...	...	2
Convulsions and Diseases of Nervous System	1	...	1	...	...	...	...	2	1	...	...	3	...	1	1	1	1	...	1	...	...	1	...	9
Tubercular Meningitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tabes Mesenterica	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	1	...	1	...	5
Other Tubercular Diseases	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Atrophy	1	...	...	...	...	...	...	1	...	1	...	2	4	1	1	3	1	...	...	2	1	...	...	15
Diseases of Respiratory Organs	...	...	...	...	...	...	...	...	...	...	...	...	4	4	1	3	2	1	3	2	2	2	1	25
Injury at Birth	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Navel Hæmorrhage	...	...	...	...	...	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Suffocation	...	...	...	2	...	...	...	2	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2
Other Violence	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
All other causes	...	...	...	...	...	...	...	...	2	2	...	4	2	3	...	...	2	...	...	...	1	...	1	13
All Causes	15	3	6	2	...	1	3	30	9	11	1	51	15	20	6	8	10	4	11	7	7	5	5	149

Four of the cases were uncertified, the causes of death being stated as convulsions, found dead, and in two cases natural causes. Six inquests were held, two of these children being illegitimate. In two of the cases death was due to suffocation in bed, in two to natural causes, one from burns, and the other from exhaustion after bronchitis.

Of the 149 deaths, 12 of the children had neither been born in Blackpool nor Kirkham Workhouse. Of the 137 children, 128 were legitimate, and 9 illegitimate. During the year there were 892 legitimate, and 48 illegitimate children born. Therefore out of every 1,000 legitimate births there were 143·5 deaths, and 187·5 out of 1,000 illegitimate births in the first year of life. For the five years 1891-95 the rates were 162·7 for legitimate and 279 for illegitimate births.

In Table IV. the deaths of children under 12 months old for the years 1891 to 1896 are given, distributed into wards; whilst in Table V. the rate for each ward for each year, and for 1891-95 has been calculated. It will be seen that Waterloo Ward is the most favourable for 1896, whilst Bank Hey is the worst, due to several premature births occurring in the ward during the year.

For the years 1891-95 it will be seen that Bank Hey has the least rate, then Talbot Ward, which is slightly exceeded by Waterloo, followed by Brunswick, Claremont, and Foxhall, in the order given.

TABLE. IV.

Number of Children under 1 year old, who died in the respective Wards.

WARD.	1891	1892	1893	1894	1895	1891-95	1896
Claremont...	23	11	18	6	20	78	20
Talbot	24	24	42	34	55	179	40
Bank Hey...	2	3	5	2	3	15	9
Brunswick .	14	17	19	18	23	91	20
Foxhall	33	16	29	25	56	159	41
Waterloo.....	7	20	10	11	12	60	7
TOTAL...	103	91	123	96	169	582	137

TABLE V.

INFANT MORTALITY.—Deaths of Children under 1 year old, per 1,000 Births.

WARD.	1891	1892	1893	1894	1895	1891-5	1896
Claremont...	298·7	129·4	209·3	62·5	183·5	172·5	142·8
Talbot	136·3	119·4	212·1	134·3	201·4	162·8	135·6
Bank Hey...	95·2	100·6	263·1	62·5	90·9	112	25·0
Brunswick...	153·8	158·8	177·5	148·8	200·0	168·2	160
Foxhall	221·4	111·9	177·9	161·3	231·4	187·2	166·6
Waterloo....	134·6	263·1	153·8	159·4	115·4	163·9	79·5
Rate for Borough	181·9	141·9	192·8	132	191·6	169·1	145·7

MORTALITY FROM ZYMOTIC DISEASES.

The seven principal zymotic diseases, viz.: — Small-pox, scarlet fever, diphtheria (including membranous croup), 'fever,' measles, whooping cough, and diarrhœa caused 73 deaths, as compared with 109 in 1895, and 45 in 1894. Of these 12 were visitors. The zymotic rate per 1,000 inhabitants was 1·90, and 1·66 deducting the deaths of visitors.

For England and Wales the rate was 2·18, and for the 33 English towns 2·86.

There were no deaths from small-pox, 9 from scarlet fever, 1 from diphtheria, 5 from 'croup,' 13 from enteric fever, 4 from measles, 8 from whooping cough, and 33 from diarrhœa.

The zymotic rate from the chief zymotics, deducting the deaths from diarrhœa and whooping cough, was 0·8734 as compared with 0·9107 for 1895 and 1·5 for the 33 English towns.

The diarrhœal rate was 0·9007 as compared with 0·79 for the 33 great towns.

MORTALITY FROM OTHER DISEASES.

Phthisis caused 42 deaths, including 14 visitors, giving a death-rate of 1·146, and deducting visitors of 0·76. For 1895 the corresponding death-rates were 1·24 and 0·97 respectively.

Diseases of the Respiratory Organs caused 112 deaths, of whom 15 were visitors. The death-rate was 3·057 as compared with 3·31 in 1895. The death-rate corrected for visitors was 2·647. The deaths from lung diseases other than phthisis constituted 17·7 per cent. of the total deaths as compared with 19·79 in 1895.

As usual, there were more deaths from these cases in the 4th quarter than any other ; but the second quarter was better than has been customary for the last five years, owing to the absence of the usual epidemic of influenza, No deaths were ascribed to the latter cause during the year.

Alcohol was certified as the primary cause of death in 3 cases only, 1 male and 2 females—2 of these being visitors. In 14 cases, death (8 males and 6 females) was referred to disease of the liver, under such circumstances that alcohol was most probably the primary cause of death. Therefore 0·082 per 1,000 persons were certified as dying from alcoholism in Blackpool, as compared with 0·394 in 1895 and 0·234 in 1894. The rate for England and Wales during the five years, 1886-90 was 0·055.

Cancer caused 20 deaths (3 amongst visitors) as against 19 in 1895, and 26 in 1894. There were 8 males and 12 females. There were 10 deaths from disease of the digestive tract, 3 from the liver, 1 from the uterus, and 6 others from disease in other parts of the body.

The cancer death-rate was 0·5460, as against 0·577 in 1895, and 0·86 in 1894.

The deaths due to tubercular affections other than phthisis, were 17, viz.: 3 tuberculosis, 5 tubercular meningitis, 7 tabes mesenterica, 1 tubercular peritonitis, and 1 intestinal tuberculosis.

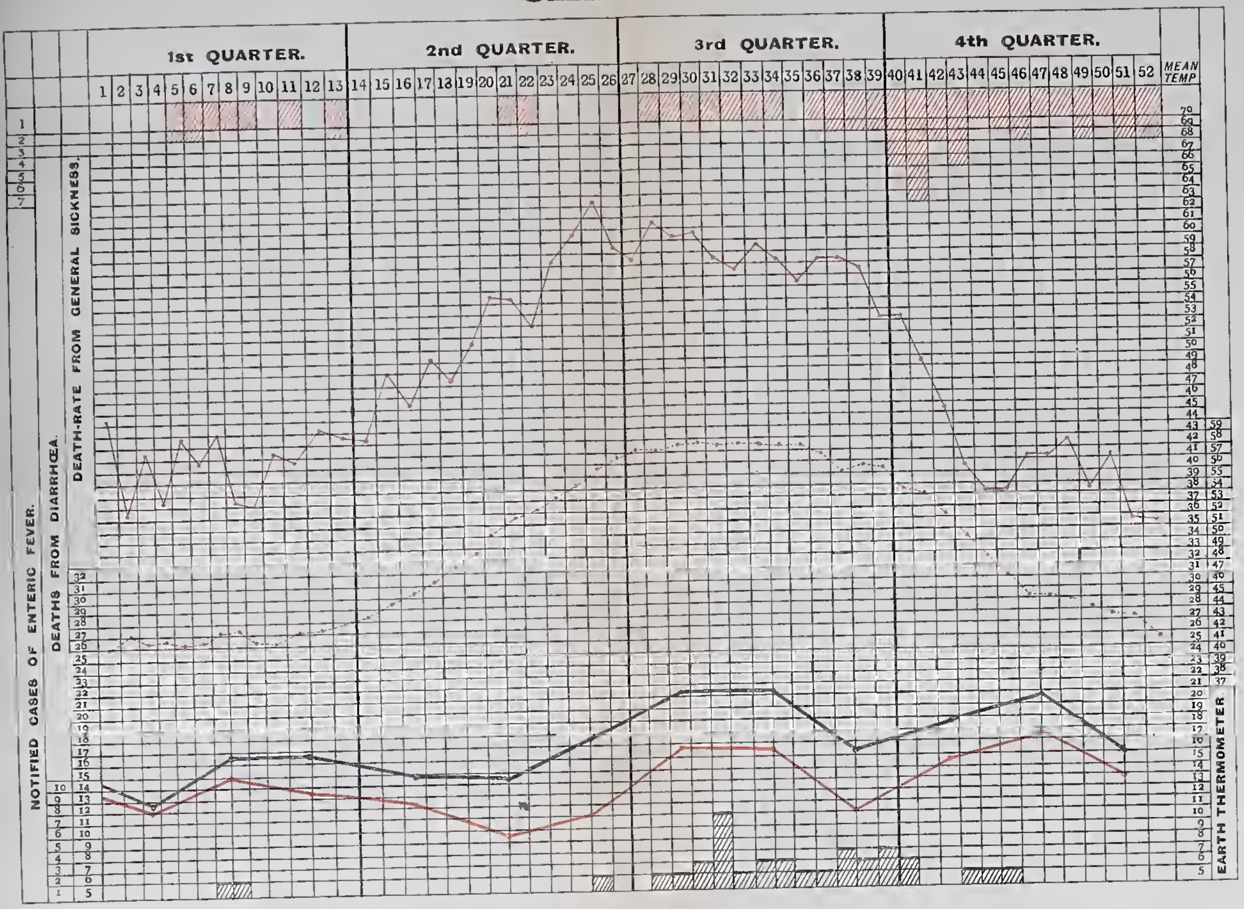
The deaths after confinement were 6. The causes of these were certified as follows:—(i.) pericarditis, parturition 4½ days, collapse; (ii.) child-birth, contracted pelvis, protracted labour, mitral disease, chronic exhaustion, and shock; (iii.) mitral disease, phlebitis, mis-carriage 8 mos., septic infection; (iv.) chorea, 3 mos., pregnancy 6 mos.; (v) parturition 31 days, vaginitis 3 mos., acute pulmonary phthisis, and parotitis; (vi.) pneumonia, 12 days after child-birth. The rate of deaths per 1,000 births was 6·38, as compared with 10·2 in 1895, and 9·6 in 1894.

The deaths from *injuries* were 16, of whom 9 were visitors, as against 14 in 1895, and 11 in 1894.

The *inquests* held during the year were 37, with the following verdicts:—

Injuries—		
By being run over	4	
By being burnt or scalded	4	
By falling	9	
	—	17
Suicide—		
By drowning	3	
By poison	2	
	—	5
Natural causes		5
Found drowned		2
Overlain in bed		2
Rupture of aortic aneurism		1
Exhaustion after bronchitis		1
Suffocative laryngitis		1
Ptomaine poisoning		1
Epileptic fit from alcoholism		1
Tubercular meningitis		1
		37

CHART I.



DEATH-RATE (Monthly) FROM ALL DISEASES ———

Do. do. OF RESIDENTS ONLY ———

TOTAL DEATHS (Weekly) FROM DIARRHŒA ▨

NOTIFIED CASES (Weekly) OF ENTERIC FEVER

MEAN TEMPERATURE (Weekly) at 9-0 a.m. ▨

MEAN TEMPERATURE OF SOIL (Weekly) at Depth of Four Feet. - - - - - - -

CHART II.

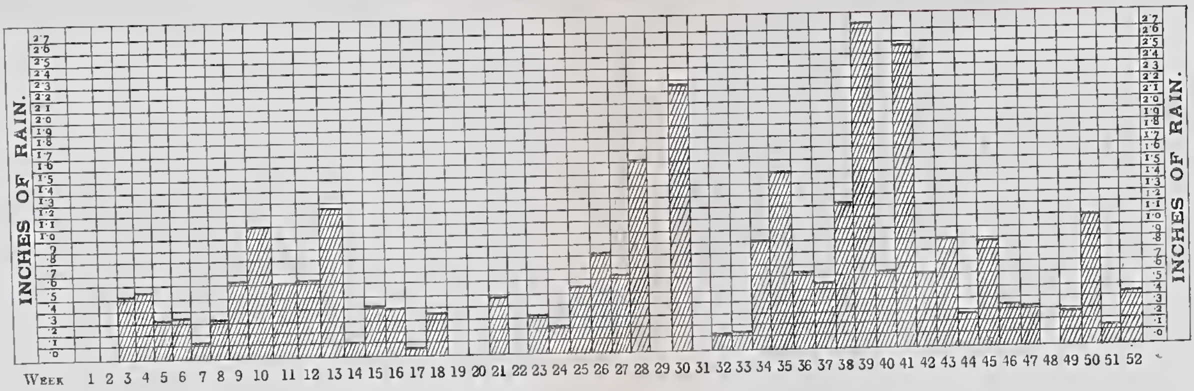


CHART III.

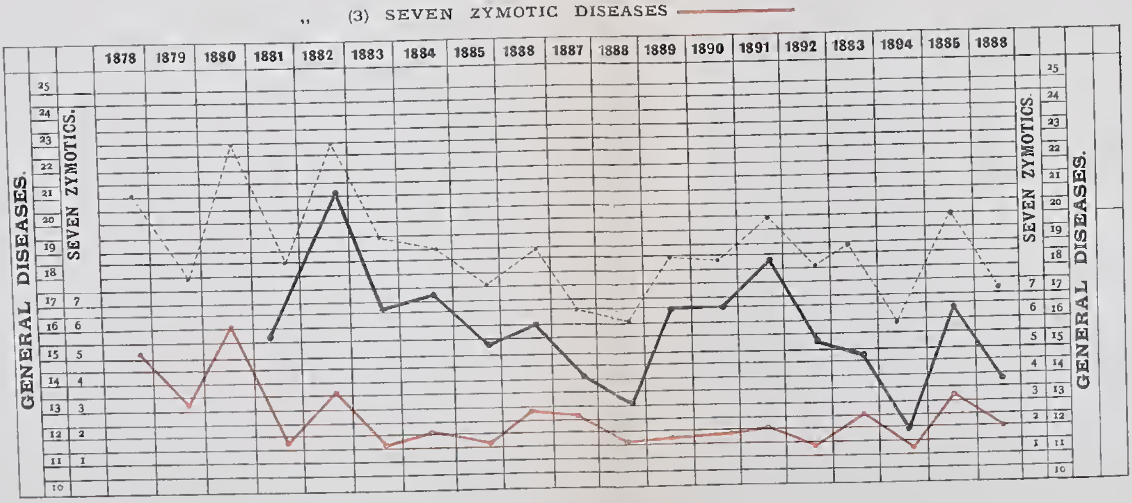
DEATH RATES.

From (1) GENERAL DISEASES - - - - - - - -

" (2) " " ———

DEATHS OF VISITORS DEDUCTED

" (3) SEVEN ZYMOTIC DISEASES ———



There were 28 deaths, the causes of which were uncertified either by the Coroner or a Medical Practitioner. Therefore 4·44 per cent. of the total deaths were uncertified, as compared with 3·48 per cent. in 1895.

Chart I. gives graphically the monthly death-rates, the black line giving the gross death-rates, the lower red line the corrected death-rates, the upper red line the mean weekly temperature. The lower shaded spaces denote the weekly deaths from diarrhœa, and the upper spaces shaded red the cases of enteric fever notified each week. It is noteworthy how the deaths from diarrhœa occur whilst the earth thermometer reads above 56° F. I am again able to give the temperature of the soil at a depth of four feet. The mean weekly temperature of this earth thermometer is denoted by the dotted red line.

Chart II. gives the rainfall for each week of the year.

Chart III. gives the several death-rates for the last eighteen years.

Tables A, B, C, D, E, F, G, K, and L, in the Appendix, give further details of the vital and mortal statistics as compared with previous years.

The accompanying table (Table VI.) gives a revision of the deaths from 15 causes during the last twelve years.

TABLE VI.

	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896
	18,031	19,550	20,380	20,540	21,661	24,312	23,846 Census.	26,470	28,389	30,337	32,943	36,638
Small-pox	...	...	...	...	...	...	...	...	1	2	...	...
Measles	2	10	...	5	2	8	10	...	4	6	3	4
Scarlet Fever	2	5	12	4	1	5	4	4	11	4	11	9
Diphtheria	2	5	5	13	12	6	1	1	4	6	4	1
Whooping Cough ...	11	3	14	...	8	2	7	5	9	3	10	8
Croup, not spasmodic	2	8	4	4	6	8	4	1	4	3	..	5
Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever	3	6	4	7	8	3	4	4	5	8	12	13
Diarrhœa	11	25	18	5	11	23	24	10	41	13	69	33
Rheumatic Fever ...	5	5	2	1	...	2	4	1	2	3	2	4
Erysipelas	...	2	1	2	2	...	1	...	4	3	2	3
Phthisis	17	27	25	23	30	27	32	33	28	33	41	42
Bronchitis, Pneumonia and Pleurisy	55	65	61	62	64	95	137	102	118	67	131	112
Heart Disease	20	23	23	30	39	37	41	40	43	45	47	53
Injuries	5	11	6	7	15	8	15	8	7	11	14	16
Other diseases	172	175	151	159	204	227	217	279	251	274	315	327

II.—ACTION TAKEN TO PREVENT THE SPREAD OF DISEASE.

A.—NOTIFICATION OF INFECTIOUS DISEASE.

This is carried on under Section 75 of the Blackpool Improvement Act, 1879, with very beneficial results. There is an idea on the part of some of the inhabitants that there is no liability of the occupier to notify the existence of infectious disease within his house, and that if he can avoid calling in a medical man there is no necessity to divulge the nature of the disease. The occupier is bound to tell in any case, whether a medical man notifies or not, although the information on the certificate of notification is held sufficient, if a medical man be in attendance. If cases of this sort occur again, it will be necessary to institute prosecutions in order to teach people their public duties. In some cases I have to complain of the certificates not being forwarded "forthwith," and the unnecessary delay in some cases in arriving at a diagnosis.

Again, I have to complain of the failure to notify cases of "puerperal fever." Only one was notified during the year and that when moribund.

Early information in such cases allows the officials to discover the cause of the disease and prevent the spread of this dire malady by taking measures which can only be undertaken by public officials.

The following cases of infectious disease were notified during the year, and are arranged in tabular form to shew the number of cases each month :—

TABLE VII.

DISEASE.	January.	February.	March.	April.	May.	June.	July.	August.	September	October.	November.	December.	TOTAL.
Smallpox	...	...	...	...	...	..	...	...	...	...	...	...	...
Measles............	1	2	33	43	28	19	10	4	6	2	...	...	148
Scarlet Fever ...	18	9	14	8	6	14	13	36	25	29	16	20	208
Diphtheria	...	...	2	1	...	1	2	...	...	...	...	...	6
Enteric Fever ...	2	5	3	...	3	...	4	3	7	22	8	9	66
Puerperal Fever	...	...	...	...	...	...	...	...	1	...	...	...	1
Rötheln............	...	...	...	1	...	1	...	...	...	...	...	...	2
Membranous Croup	..	...	...	...	...	...	...	...	...	...	...	...	...
TOTALS.	21	16	52	53	37	35	29	43	39	53	24	29	431

The number of houses infected with the different diseases is given in the following table :—

TABLE VIII.

Number of Houses Infected.

DISEASE.	January.	February.	March.	April.	May.	June.	July.	August.	September	October.	November.	December.	Totals.
Smallpox	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles...	1	1	25	32	23	13	8	4	6	...	...	...	113
Scarlet Fever ...	14	8	11	4	5	12	9	26	21	22	11	11	154
Diphtheria	...	...	2	1	...	1	1	...	...	...	...	...	5
Enteric Fever ...	1	5	3	...	2	...	4	3	7	20	8	7	60
Puerperal Fever	...	...	. .	...	...	...	...	...	1	...	...	...	1
Rötheln............	...	...	...	1	...	1	...	...	...	...	...	...	2
Membranous Croup	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTALS.	16	14	41	38	30	27	22	33	35	42	19	18	335

The accompanying Table gives the number of infectious cases notified as compared with the previous year, the deaths from these diseases, the percentage case mortality, and the death-rate from each disease per 1,000 inhabitants in comparison with the similar rates for the 33 great towns during 1896.

TABLE IX.

DISEASE.	Cases Notified.		Cases Notified per 1,000 inhabitants.	Deaths in 1896.	D.R. per 100 cases.	D.R. per 1,000 inhabitants.	D.R. per 1,000 inhab. for 33 great towns.
	1896	1895					
Smallpox	0	8	0	0	0	0	0·002
Measles	148	108	4·039	4	2·70	0·109	0·71
Scarlet Fever	208	154	5·677	9	4·32	0·246	0·22
Diphtheria	6	17	0·164	1	16·66	0·027*	0·38
Enteric Fever	66	79	1·801	13	19·7	0·355	0.19
Puerperal Fever ...	1	1	0·027	1	100·00	0·027	...
Whooping Cough...	...	...	...	8	...	0·218	0·570
Diarrhœa	...	...	...	33	...	0·901	0·79

* Including 5 deaths from 'Croup,' the Diphtheria death-rate was really 0·164.

The cost of notification in fees to medical men has been as follows :

	£	s.	d.
Measles	13	0	0
Scarlet Fever.......................................	18	10	0
Diphtheria	0	15	0
Enteric Fever	7	5	0
Puerperal Fever	0	2	6
	£39	12	6

SMALLPOX.

There was no case of this disease in the town during the year. We have been free from the disease since August, 1895.

The Old Sanatorium is kept clean, heated and ventilated, mainly for the isolation of cases of this disease. At the best this is only a makeshift arrangement, and ought to be altered as soon as possible. It is now generally accepted that it is not a right procedure to isolate cases of small-pox on the same site as other infectious diseases, and therefore provision other than the Infectious Diseases Hospital is requisite. The Old Sanatorium is a building of the temporary class, not adapted to the purposes of a Small-pox Hospital and in a very objectionable situation, *i.e.*, close behind the Cemetery, and in fact on land which will eventually be taken in for the purposes of burial. Just lately the actual burial ground has been extended up to the fence bounding the Sanatorium grounds, so that in a short time corpses may be buried within twenty feet of the building. Again, I fail to see why the unfortunate sufferers from this malady should not have as ample and luxurious hospital provision as the patients of any other disease ; but it has been too long the custom to regard any provision as good enough for such cases.

In any case it is clear that the present arrangement cannot continue longer than two years, and it will take quite that time to provide a new one. Both on the ground of expense, and the difficulty of finding a suitable sight for the hospital within the Borough, I advise the making of some agreement with the Joint Hospital Board to be formed for small-pox purposes alone for the districts of the Rural District Councils of the Fylde, Garstang, and Preston.

MEASLES.

Measles was slightly more prevalent than in 1895, a slight epidemic occurring in March and April, which had burnt itself out by July.

There were only 4 deaths out of the 148 cases, or a percentage mortality of 2·7.

From September, 1895, there were only 10 cases, until one was imported from Manchester in January, and 2 from Burnley in February. In March a smart epidemic broke out in connection with

St. Cuthbert's School, the latter being promptly closed by the School Managers. By the end of March a few cases attending the Primitive Methodist School, Chapel Street, were notified, followed in the middle of April by a few cases amongst scholars of the Victoria and Holy Trinity Schools. The Bethesda School was also slightly infected by the end of April.

A number of cases seemed to have contracted the disease from neighbouring houses, especially in the neighbourhood of Pleasant Grove, thus accounting for the infection of the Victoria and Holy Trinity Schools, subsequent to St. Cuthbert's.

After July the cases were due to importation from such towns as Halifax, Bradford, and Lincoln, where the disease was rife.

Measles being a prevalent disease in the districts from which Blackpool draws its visitors, being apparently on the increase in severity and prevalence, and no adequate measures being taken to deal with it in the generality of districts, we must be prepared to have increasing difficulty in dealing with this disease and warding off epidemics. It is one of the penalties we have to pay for our popularity.

Early notification of the disease is in my opinion useful, and we find it so here, but one difficulty is that parents regard the disease as a trivial matter, and, fnrther, the population of Blackpool is a very changing one, so that people are constantly coming to reside here from districts where no notice is taken of the disease by the Sanitary Authority, and consequently they are ignorant of the necessity to notify.

I am taking measures to supplement the ordinary means of notification by arranging with the schoolmasters to supply me with weekly lists of absentees.

I think the fact that we have only had 17 deaths from measles as compared with 39 from scarlet fever during the five years 1892-6, shews that notification is valuable. During those years the experience of England and Wales and large towns has been that the deaths from measles have greatly exceeded those from scarlet fever.

SCARLET FEVER.

There were 208 cases, with 9 deaths, as compared with 154 cases and 10 deaths in 1895, *i.e.*, although there were more cases the disease was less virulent, the percentage mortality being 4·32.

The difficulty in dealing with this disease is one of diagnosis, many mild cases being over-looked until desquamation occurs, and presumably others are never known of at all. Hence although we are never able with our present knowledge and means to stamp out the disease like we should small-pox, yet it would appear that the constant warfare carried on against it in the form of isolation and disinfection diminishes the amount of infection circulating amongst the populace, and also the virulence of the disease.

The epidemic prevalence of the disease at the end of 1895 continued through January, February, and March, abated slightly until June, and then rose until we had 36 cases in August, 25 in September, and 29 in October, continuing with slightly diminished vigour until the end of the year.

DIPHTHERIA.

There were only 6 cases of the disease notified, with one death, as compared with 17 cases and 4 deaths in 1895. Apart from this death there were 5 others certified as due to "croup," and as in some of these cases there were subsequent cases of diphtheria in the house, I am of opinion that nearly all, if not all, were in reality due to diphtheria. For that reason I have included these five deaths in the Zymotic death-rate as deaths from diphtheria.

I am now making arrangements to have bacteriological examinations made for confirming, or otherwise, the diagnosis in all notified cases, and also in any suspicious ones, and shall at all times be pleased to co-operate with the medical attendant with that object in view.

ENTERIC FEVER.

This disease was not quite so prevalent as in the previous year, there being 66 cases and 13 deaths, as compared with 79 cases and 12 deaths. There were a few cases notified in January, February, March, May, July, and August, but in October a smart epidemic occurred, which I believe to have traced to the consumption of raw mussels from a part of the coast where the sea-water is polluted with sewage. This, if true, will explain what has been a puzzling fact to me for some years, viz., that although we have been paying particular attention to the drainage of houses and the town generally, yet no influence has been exerted upon the prevalence of typhoid fever, whilst the death-rate from it has been about double that of the 33 great towns in recent years.

I judge the matter to be of sufficient importance to warrant me in giving the details of the cases occurring just before the outbreak in October, and during the outbreak, to enable any reader to form his own conclusions on the evidence.

I must premise that on the jetties of the Central and North Pier there is an extensive growth of mussels. The sewer out-fall which extends to extreme low-water mark, lies about a quarter mile south of, and slightly more sea-wards than the end of the Jetty of the Central Pier, whilst the North Pier lies about 950 yards further North. An incoming tide, especially with a wind from the South West, which is one of the prevailing winds, is bound to carry the sewage, mixed with sea-water, over these mussels. Further than this, Spen Dyke, which is a water course for the drainage of the Southern portion of the Borough, and the district south of it, and is not free from sewage contamination, opens at the foot of the hulking, about 460 yards south of the Central Pier. Drainage only flows from this outlet when the tide is above half way up, at other times the flow takes place down the sewage out-fall. The course of the current from the Spen Dyke outlet, is seen to be generally towards the Jetty of the Central Pier. During the season the mussels are not much disturbed, except by the crews on the steamers and chance passers-by ; but at the end of September and beginning of October, the shell-fish is supposed to be in prime condition, and there is a dearth of employment in the town, so that many are then engaged in removing the mussels to be hawked over the town.

One individual, who did not care for regular work, I found collected these, and then went round to the vaults of the various public-houses in the town selling the molluscs in a raw state to the occupants of these places. Most of the cases I suspect to be due to mussels purchased from this man, whom I will designate as the man "A.". The theory I have is, that the sewage of the town became infected during June, July, and August with the enteric bacillus, and that this infected the mussels, the infection lasting until they were collected in September, when the climatic conditions are eminently favourable to the spread of the disease. The length of life of the enteric bacillus, in sea water, is not known, but at any rate Klein found that the bacillus would live over three weeks in sea water.

SHORT ACCOUNT OF CASES OF ENTERIC FEVER.

M means Male and F Female.

1. F., 20. Nurse at Infectious Disease Hospital; Infection through nursing enteric cases. Notified January 10th.

2. F., 42 years Milk from farm with a water-supply from surface well. No history of infection at the farm. Drains of house satisfactory to smoke test. Notified January 31st.

3. F., 20 years. Notified February 2nd. Appears to have been contracted by visiting a boy, who was suffering from an unrecognised attack of enteric fever.

4. M., 14 years. Notified February 7th. Source of infection from same boy as No. 2.

5. F., 41 years. Notified February 10th. Source of infection unknown. No leakage of drains discovered.

6. M., 20 years. A visitor from Salford. This was a relapse of an attack from which he was recovering when he arrived. Notified February 17th.

7. F., 17 years. Notified February 25th. Drains of the house in a very bad condition; but the infection could not be traced.

8. M., 13 years. Notified March 13th. Infection untraced.

9. M., 27 years. Notified March 22nd. A doubtful case. Drains of house found to be leaky. Had mussels about fortnight before the onset of the disease. Patient died.

10. M., 41 years. Notified March 23rd. Milk from farm with surface well for water supply. Drains of house satisfactory.

11. M., 30 years. Notified May 21st. Milk from farm with a very suspicious water supply, and from which I traced a few cases in May 1895, when there was a case of enteric fever at the farm. The drains and soil-pipes of the house were in a very leaky condition. A very severe case but he recovered. See case 23.

12. F, 31 years. Notified May 26th. Had been nursing a case of enteric ever at Manchester from April 19th to 29th The drains of the house were leaky.

13. F., 29 years. Notified May 28th. Nurse in the scarlet fever ward at the Infectious Disease Hospital, but one of the patients previously had also had symptons pointing to an undoubted case of enteric fever.

14. F, 28 years. Notified July 6th. Patient was a nurse engaged in private nursing in the town Had been nursing a case, which was considered to be a doubtful case of the disease.

15. F, 26 years. Notified July 18th Had been living in the country where the water supply was very suspicious

16 M, 42 years Notified July 24th. Drains of house leaky, with defective cesspools belonging to the adjoining house. Patient died.

17. M., 18 years. Notified July 31st Drains defective. Milk supply from same farm as No. 15.

18 M., 23 years. Notified August 2nd. Milk supply from farm with suspicious well. Drains of house defective. A fellow workman living in the same house in Blackpool subsequently started with the disease in Leeds.

19. M., 24 years. Notified August 11th. Eaten large quantities of mushrooms for three weeks previously Drains were defective, unventilated and not disconnected from the sewer.

20. M., 50 years. Notified August 17th. Milk supply from arm with surface well. Drains defective. Patient died.

21. M., 16 years. Infection not traced. Notified September 6th.

22. F., 10 years. Notified September 8th. Drains very leaky and defective. See case No. 34.

23. F., 24 years. Notified September 9th. Servant at house where case No. 11 occurred. Drainage defects had not yet been repaired.

24. M., 13 years. Notified September 14th. Infection not traced.

25. F., 45 years. Notified September 15th. A doubtful case. Infection could not be traced, and patient died.

26. M , 28 years A doorman at dining-rooms. Notified Sept. 26th. Patient ascribed illness to some "bad" meat he had eaten to his tea on September 14th.

27. M , 11 years. Notified September 26th. Drains of house defective.

28 F., 26 years. Notified September 29th. Fishmonger. Patient said he had not eaten any raw shellfish.

29. M., 14 years. Notified October 1st. Drains of house in a very leaky state Had eaten cockles and watercress about a fortnight previously. Patient died.

30. M., 19 years. Notified October 2nd. Cabdriver. Milk supply from farm with suspicious well. Had raw mussels about 3 weeks previously from the man "A." Drains of house leaky.

31. F., 21 years. Notified October 3rd. Domestic servant. Drains of house leaky.

32. M., 28 years. Notified October 3rd. Oyster hawker. Confesses to eating oysters at times. Patient died.

33. M., 24 years. Notified October 4th. Bricklayer's labourer. First noticed illness September 30th. Has been in the habit of having raw mussels every Saturday off the man mentioned previously in the vaults of a certain public house. Was not a temperate man.

34. M., 17 years. Notified October 4th. Infected from case 22, which was nursed at home.

35. M., 12 years. Notified October 6th. Infection not traced.

36. M., 35 years Notified October 6th. Arrived from Manchester on September 29th, where he must have been infected. Patient died.

37. M., 33 years. Notified October 8th. Cab-driver. Drains of house leaky, not disconnected, not ventilated. Patient had some raw mussels from the man previously mentioned, about 9 or 10 days before he commenced to be ill. He had them at other times. Patient died.

38. M., 25 years. Notified October 7th. Cab-driver. Drains of house leaky. We obtained evidence that this man had also eaten raw mussels from the above-mentioned man.

39. M., 25 years. Notified October 8th. Cab-driver. Could not trace the infection.

40. M., 23 years. Notified October 8th. Cab-driver. No definite information as to eating shell-fish was obtained.

41. M., 31 years. Notified October 13th. Cab-driver. Had frequently had raw mussels from the man referred to above. Had been drinking heavily all summer. Patient died.

42. F., 30 years. Notified October 15th. Barmaid at public-house mentioned in case 33. On September 26th, and also October 3rd, she had been prevailed upon to accept two raw mussels on each occasion from the man "A."

43. M., 24 years. Notified October 6th. Ostler. Had two-pennyworth, and sometimes four-pennyworth of raw mussels every night at the public-house alluded to in case 33, from the man "A."

44. M., 29 years. Notified October 19th. Infected from cases 22 and 34.

45. M., 30 years. Notified October 19th. Fish-hawker. Confesses to having eaten raw mussels on September 8th or 10th, but I was not able to trace them. He lived opposite to case 43.

46. M., 38 years. Notified October 20th. Fisherman and shrimper. Has not eaten shell-fish. Infection untraced.

47. M., 32 years. Notified October 20th. Labourer. First felt ill on October 11th. Had some raw mussels on September 12th from a man whose description corresponds to that of man "A."

48. M., 38 years. Notified October 21st. Pork butcher. Definitely ill on October 15th. Raw mussels twice lately, about three or four weeks ago. On one occasion he had a quart from a hawker in the street. I could not trace the man. Patient died.

49. F., 4 years. Notified October 30th. Milk supply from farm with a surface-well Drains of premises satisfactory, but yard surface defective.

50. M., 4 years. Notified November 1st. Imported case.

51. M., 18 years. Notified November 6th. Cab-driver Infection not traced.

52. M., 4 years. Notified November 12th. Infection not traced.

53. M, 23 years. Notified November 13th. This was not a case of enteric fever, his typhoidal condition being due to excess of drink and want of food.

54. M, 49 years. Notified November 20th. House-painter Had mussels about a month previous to illness, but not raw. Complained strongly of smells from a ventilator in the sewer culvert which was situated close to the house Drains of house were satisfactory. Probable source of infection was sewer gas from this ventilator. Patient died

55. M., 16 years Notified November 24th. Cabin-boy on a steamer plying at the Central Pier. There was no direct evidence that he had partaken of mussels.

56. M., age unknown. Notified November 29th Infection untraced.

57. M., 32 years Notified December 2nd. Cab-driver and Cellarman. Appears to have had a slight attack of enteric fever about October 19th, from which he was recovering when he had a relapse, and then again a relapse, and it was not until the second relapse that an official notification was sent in. The cellar which he had to clean became flooded with sewage during the high tides in October, and it is possible that he thus became infected.

58. M., 12 years. Notified December 4th. Infection untraced.

59. M., 32 years Notified December 7th Gardener. Infected from his child—case 49—which was nursed at home

60 F., 21 years. Notified December 14th Nurse at Infectious Diseases Hospital for enteric cases.

61. M., 27 years. Notified December 18th. Infection untraced

62. F., 20 years. " " 22nd. " "

63. M, 47 years. " " 19th. " "

64. M., 4 years. " " 31st. Drains leaky, not disconnected, and unventilated

65. F., 14 years. Notified December 27th. Nurse girl. There had been a case of the disease in a relative of the mistress in Manchester. No source of infection could be discovered except this.

66. F., 37 years. Notified November. Infection untraced. Patient died.

In these cases of enteric fever, as in past years, I was struck with the readiness with which the disease was communicated from the sick to those attending them, and also as to the special incidence of the disease upon those leading irregular and intemperate lives. The number of cab-drivers affected is particularly noteworthy.

The successson of events mentioned in cases 30, 33, 37, 38, 41, 42, and 43 establish, in my opinion, a stronger chain of evidence than can be set aside on the assumption of mere coincidences. The cases 45, 47, and 48 also add additional evidence to the mussel theory, though in these cases they cannot be connected with the man "A."

In October I warned the public by letters in the newspapers of the danger of eating such mussels, and had some notice boards painted to affix to the jetties to further caution any passer-by of the risk run by consuming the mollusc while in a raw state. This practically killed the trade for a time, but I think it will be necessary to clear all the mussels away and destroy them before this peculiarly fatal period for the spread of the disease—September and October comes round again.

It is very significant that in January, 1897, I received a communication from the Medical Officer of Health of Bilston, stating that a case of enteric fever had been notified to him on October 6th, 1896, (*i.e.*, during the week when the cases which I suppose to be infected with mussels were notified here). The lady had been visiting with others in Blackpool, and whilst here had partaken of mussels. She recovered, but infected her mother, who died. A companion of the patient, who came from Birkenhead, and had likewise partaken of mussels, contracted the disease, likewise infected her mother and also two other persons. The mother died. Suspicion was cast upon the mussels and the sanitary arrangements of the house by the Bilston officials. Nothing wrong could be found with the house, and I communicated to them my belief that the mussels were at fault, asking for further information After such a lapse of time nothing further could be discovered, but it is interesting that suspicion against the mussels was raised independently.

Arrangements are being made to apply the serum test for the diagnosis of enteric fever to all cases.

PHTHISIS OR CONSUUMPTION.

There were 42 deaths ascribed to this cause, 14 of them being visitors. In every case an offer to disinfect the infected premises free of charge was made, but only in six cases was that offer accepted, although in others we got an answer to the effect that means of disinfection had been carried out which they considered sufficient, and refusing our well-intentioned proposal. Voluntary notifications of this disease are never received, and in Blackpool I am convinced that it is bound to remain a dead letter. However, the death-rate from this cause seems to be declining, due, I believe, to tne efforts which we are constantly making to render all dwellings free from damp.

DIARRHŒA.

There were 33 deaths from this cause as compared with 69 in 1895. Of these 7 were above five years old and 26 under. High temperature during the months of August, September, and October, coupled with a temperature of over 56 deg. in the earth at a depth of four feet are the usual concomitants of a prevalence of this disease. At other times diseases of indefinite causation, of which diarrhœa is a symptom, are liable to be included under this designation.

In 1896, for August, September, and October the temperatures were below the corresponding ones for 1895, and the averages for the years 1885–94.

In the third quarter there were 25 deaths as compared with 51 in that of 1895.

Food, and especially milk, in a state of decomposition, even in an incipient state, not cognizable to the ordinary senses, is the prime factor in this disease. But rigid cleanliness of the person, house, yards, and a due provision of air space for proper ventilation, are requisite to prevent this infection of the food.

B.—ISOLATION.

The Infectious Diseases Hospital is growing in favour with the public, now it is recognised that cases of infectious disease recover better in hospital than at home, as well as avoiding the risk, unpleasantness, and interference with business or occupation caused by home isolation. At one period of the year it was impossible to take in all the cases that were willing to be removed, so that a selection had to be made, yet in spite of that 77 per cent. of the scarlet fever cases were removed as compared with 73 per cent. in 1895.

Very great praise is due to the Matron, Miss Cain, and the nursing staff for the manner in which their duties are performed, and especially so under the present arrangement by which any medical practitioner can follow his patient into the hospital and attend there. This is not allowed in the Hospital for Accidents and General Sickness, and *a fortiori* should not be where there is a danger of carrying away infection.

Under the system at present in vogue it is very difficult to maintain discipline, and secure that easy working of the institution which is desirable.

TABLE X.

Patients admitted to the Sanatorium during Year 1896.

No. of cases notified.	DISEASES.	Total admtd.	MALES.		FEMALES.		Dis-charged.	Died	Remaining in Hospital, Dec. 31st,	
			Under 12 years	Over 12 years	Under 12 years	Over 12 years			1895	1896
208	Scarlet Fever	160	53	18	64	25	161	5	24	18
65	Enteric Fever	35	...	24	...	11	31	7	8	4
6	Diphtheria ...	6	3	...	2	1	5	1	...	...
148	Measles.........	9	2	...	5	2	9	...	...	...
...	Other Diseases	1	...	...	...	1	...	...	...	...
...	Enteric Fever outside Boro'	1	...	1	...	...	...	...	...	1
427	Totals......	212	58	43	71	40	206	13	32	23

The Old Sanatorium was not used during the year, but it was kept open and prepared for emergencies all the year.

For the financial year, ending March 25th, 1897, the cost of the hospitals were :—

INFECTIOUS DISEASES HOSPITAL.

	£	£
Wages of Matron and Porter	98	
Nurses, including their expenses	117	
Provisions for Inmates, Staff, &c.	539	
Domestic Servants and Laundress	52	
Gas, Coal, Water, Rates, and Taxes	144	
Alterations and Repairs	337	
Gardening	51	
Medicine and Medical Appliances	24	
Advertising, Printing, &c.	6	
Pneumatic Tyres for Ambulance Carriage and Repairs of Same	45	
Bedsteads, Mattresses, Blinds, &c.	48	
Stimulants	10	
Matron's and Nurses' Uniforms, Cleaning Materials, and Sundry Expenses	63	
		1,534
Less Receipts from Inmates	79	79
		1,455
Interest and Sinking Fund		330
		£1,785

OLD SANATORIUM.

Wages of Caretakers, &c.	£1	
Rents, Rates, and Taxes, Gas, Coal, &c.	22	
Fencing Land and Sundry Repairs	83	
		106
		£1,891

During the financial year, March 26th, 1896, to March 25th, 1897, the average stay in the Hospital of the 276 patients was 38·11 days, or 10,519 days.

Including in the cost of the Hospital the interest and sinking fund, the cost per week per patient was £1 4s. 9·7d. Deducting the amount received from patients, the actual cost to the ratepayers of each patient averaged £1 3s. 9d. per week as compared with £1 7s. 1d. in the financial year, 1895-6. In this cost the cost of disinfecting articles sent from the Borough to be disinfected is included.

Since the Hospital was opened in July, 1891, the following cases have been treated there and at home, with the results mentioned in Table XI. :—

TABLE XI.

Disease.	Cases treated in hospital	Deaths.	Per cent. of mortality.	Cases treated at home.	Deaths.	Per cent of mortality.
Measles	128	*Nil*	*Nil*	821	26	3·16
Scarlet Fever	481	22	4·57	202	21	10·40
Enteric Fever.........	166	21	12·65	135	24	17·11
Diphtheria	31	9	29·03	27	8	29·6
Other Diseases	8	3	37·5	...	...	...
TOTALS	814	55	6·76	1,185	79	6·66

III.-GENERAL SANITARY CONDITION OF THE DISTRICT.

A.—INSPECTOR OF NUISANCES REPORT.

To the Chairman and Members of the Sanitary Committee.

GENTLEMEN,—I have the honour to present to you my sixteenth Annual Report of the work carried out under the superintendence of the Medical Officer of Health by my branch of the Sanitary Department during the year 1896.

I give hereunder the figures for the past year's work together with similar figures relating to 1895, for the purpose of comparison :—

		1895.	1896.
Complaints received...		63	33
Houses and other premises inspected		2298	2736
Houses where sanitary defects were found		1594	1156
Houses and other premises re-inspected		1499	2450
Notices served for the Abatement of Nuisances.	Council	132	264
	Preliminary	646	737
	Verbal	277	216
	Letters	96	91
		1151	1308
HOUSE DRAINS TESTED—			
New Houses	satisfactory	452	880
	unsatisfactory	260	214
Other Houses	satisfactory	87	419
	unsatisfactory	677	698
House drains re-tested		610	612
Total number of tests made		2086	2813
Number of Sanitary defects repaired		2841	3143
Houses where sanitary defects were repaired		760	822
DRAINS—			
Drains laid, relaid, and disconnected		440	428
Drains repaired and cleaned out		304	222
Unsuitable gully traps replaced by properly trapped gullies, and new gullies fixed		289	469

	1895.	1896.
W.C's.—		
New Soilpipes fixed	3	3
New w.c.'s fixed in lieu of privies and defective w.c's....	155	104
Waterclosets repaired	366	258
Fittings and Water provided for w.c's.	61	83
W.C. Soilpipes repaired and ventilated	135	188
Pan w.c's. abolished	92	2
REFUSE RECEPTACLES—		
Ashpits abolished	20	67
Ashtubs provided	86	47
Ashpits re-built on approved system	51	15
Manure receptacles provided	3	2
Cesspools abolished	6	1
New cesspools built	1	0
Pail closets substituted for privies	2	1
Privies abolished	3	0
WASTE PIPES—		
Bath, lavatory, slopstone, and rainwater waste pipes disconnected over gullies	92	111
New slopstone waste pipes fixed	53	90
New rain-water pipes fixed	17	52
Rain-water pipes and roof gutters repaired	44	109
Slop-hopper waste pipes treated as soil pipes	10	41
Slop-hopper waste pipes abolished...	3	0
MISCELLANEOUS—		
Houses cleaned and limewashed	2	2
Walls of houses cemented	1	7
Floors re-laid with flags or with cement	64	105
Back yards repaired	215	288
Back passages cleansed	24	55
Accumulations removed	26	59
Old wells filled in and F.W.W. provided	0	1
Premises disused as sleeping apartments	0	0
Animals removed from improper situations	5	36
Roofs repaired	5	6
Chimneys raised to abate smoke nuisance	1	4
Rooms ventilated	4	0
Premises other than dwellings closed	0	0

UNSOUND FOOD.

DESTROYED UNDER MAGISTRATES' ORDERS—

Beef and Mutton	84lbs.	Hake	3 pieces.
Viscera and pleuræ of one cow affected with tuberculosis.		Bullock's liver affected with flukes.	
		Cod	12lbs.
Haddocks	10	Rock Salmon	3 pieces.
Ducks	5	Chickens	5

3 Lemon Soles.

DESTROYED WITH OWNER'S CONSENT—

41 pairs of kippers, 19 whitings, 16 bloaters, 4 halibut, and 3 lemon soles. 4lbs. 14ozs. pears, 2 barrels of pears, 1 carcase of a sheep, 35lbs. of meat, and 30lbs. strawberries.

For the meat destroyed with owner's consent at the Public Slaughterhouse, the portion of the report relating thereto must be consulted.

The owner of the 84lbs. of beef and mutton was summoned for having meat unsound or unwholesome, or unfit for the food of man, on his premises in course of preparation for sale. The case was dismissed.

The owner of the unsound poultry was fined 5/- and costs.

INSPECTIONS.

	1895.	1896.
Inspections of Factories and Workshops	27	93
Do Dairies and Milkshops	469	408
Do. Bakehouses	378	298
Do. Slaughter-houses	482	775
Do. Common lodging-houses	314	239
Do. Shops used for the sale of Flesh, Fruit, Fish, Milk, Bread, Butter, Vegetables, &c., Inspected regularly.		
Legal Proceedings taken	—	16
Letters (other than those relating to nuisances) ...	—	357

INFECTIOUS DISEASES.

Inquiries made into cases of infectious disease	206	376
Houses disinfected after cases of infectious disease ...	319	312
Houses disinfected after cases of consumption	11	6
Isolation notices served upon householders	161	360
Isolation notices served upon school managers... ...	77	168

ARTICLES REMOVED FROM 239 HOUSES TO SANATORIUM—

Sheets, quilts, blankets, and such	1164	Carpets	346
Articles of clothing	938	Rugs and Mats	169
Pillows and bolsters	794	Curtains	111
Books	53	Cushions	59
Beds	352	Table-cloths	52
Mattrasses	382	Miscellaneous Articles	216

Total number of articles disinfected 4636,
and also 3023 articles from the Sanatorium. Total 7659.

COMMON LODGING-HOUSES.

Total number on register	2
Limewashed and cleansed	2

Inspected 239 times.

SALE OF FOOD AND DRUGS ACTS.

Samples were taken for Analysis according to the provisions of the above Acts, viz. :—

Milk	17	Lard	5	Vinegar	3
Whiskey	12	Rum	4	Gin	2
Butter	7	Coffee	3	Pepper	1
					54

These samples were submitted to the Borough Analysts for examination. Forty-five of these were reported to be genuine, but in the case of two samples of milk, one was said to be poor, and the other short of fat.

The adulterated samples were :—

(i.) Irish Whiskey, which was 53 degrees under proof, and contained 28 degrees excess of water. The case was dismissed, as the landlord of the house committed suicide shortly after the sample was taken, and the magistrates did not consider him responsible for his actions at the time.

(ii.) Rum, which was 32½ degrees under proof, and contained 7½ degrees excess of water. Fined 5/- and costs.

(iii.) Irish Whiskey, which was 37½ degrees under proof, and contained 12½ degrees excess of water. Fined 5/- and costs.

(iv) Irish Whiskey, which was 36 degrees under proof, and contained 11 degrees excess of water. Fined 10/- and costs.

(v.) Scotch Whiskey, which was 38 degrees under proof, and contained 13 degrees excess of water. Fined 10/- and costs.

(vi.) Irish Whiskey, which was 43 degrees under proof, and contained 18 degrees excess of water. Fined 10/- and costs.

(vii.) Scotch Whiskey, which was 32 degrees under proof, and contained 7 degrees excess of water. Fined 10/- and costs.

(viii.) Irish Whiskey, which was 37 degrees under proof, and contained 12 degrees excess of water. Fined 10/- and costs.

(ix.) New Milk, which was certified as containing 3·09 per cent. fat, 7·95 per cent. other solids, *i.e.* 11·04 per cent. total solids, and to have upwards of five parts of water added to every hundred of the poorest milk. This case was dismissed.

GENERAL REMARKS.

The 822 houses made sanitary during the year, were distributed over the six wards of the Borough in the following proportion :—

	1895.	1896.
Claremont Ward	107	100
Talbot do.	158	207
Bank Hey do.	47	38
Brunswick do.	105	86
Foxhall do.	210	207
Waterloo do.	133	184
	760	822

The staff of drain-testers varies from five to eight, according to the urgency of the work in that department. They are still divided into two gangs, one for the north and the other for the south district.

Two summonses were taken out against the owner of two houses, where the sanitary defects had resulted in disease. An order was obtained in each case to carry out the work required to be done, viz :—to abolish defective pan w.c 's. ; to efficiently ventilate the soilpipes ; and to relay the drain with cement joints. This work was promptly done.

Three summonses were issued against another owner of three houses, and orders to abate the nuisances complained of obtained. Under these orders, the following work was done:—the drains were relaid with water-tight joints, and were disconnected from the sewer, by means of disconnecting traps; ventilated by two untrapped openings ; deep open ashpits abolished ; rain-water pipes disconnected from the drains over properly trapped gullies ; and the cellar-floors repaired.

My thanks are again due to the owners and agents of property, for their readiness, as a general rule, to meet in a fair spirit, the demands of the Sanitary Department. I am at all times willing to confer with them as to any alteration of the sanitary arrangements of houses.

I am, Gentlemen,

Your obedient servant,

FRANCIS MACDONALD,

Inspector of Nuisances.

PUBLIC HEALTH OFFICES,
FEBRUARY, 1897.

B.—THE CONDITION OF DWELLINGS.

The drains of occupied houses are examined by the smoke-test and by excavation on complaint made by the occupier or owner, after the occurrence of certain infectious diseases, and whenever the Medical Officer of Health or Sanitary Inspectors have any reason to suspect that the drains are not perfect.

It is satisfactory to find that out of 1,117 such houses, 419 were found satisfactory, or 37 per cent., whilst in 1895 only 87 out of 764 houses were satisfactory, or 11 per cent.

In all defective drains we now specify cement joints and have no difficulty in getting the work carried out, and on the whole the repairs are carried out in a more workmanlike and substantial manner than formerly.

It is to be hoped that in a few years there will be less necessity for such frequent testing of the drains, but I fear that until the Building Plans Committee say distinctly that they will not consider any joint, which is not water-tight and will not withstand the water test, as satisfying the bye-law for new buildings with respect to drain pipes, that the Sanitary Department will always be hampered in its efforts to secure sanitary dwellings. At the present time clay-puddle joints are being allowed in new buildings, and the smoke-test alone is used for testing both before and after covering up the drain. These joints are condemned as unsatisfactory by experts. There is alarge expenditure going on in the shape of the wages two building inspectors and their drain-testers, and the proportion of wages of the drain-testers in the sanitary department. With the same inspection and expense, but a higher standard of excellence both in the materials and workmanship required, permanent benefit to the owners and occupiers of property would accrue, with a diminished sickness and death-rate.

In new buildings also the bye-law with respect to cementing, asphalting, &c. the site is not enforced, and in several instances I have found water lying stagnant beneath the basement in ground floors of houses—the floors of which are formed of wooden boards—so that any smell as well as ground-air is drawn up into the houses.

On these several points I have caused inquiries to be made into the practice of other towns, and for your information I append a tabulated statement of the replies received.

The important work of having all back-yards in the town properly flagged has been continued, 288 such having been done during the year.

The Building Plans Committee do not demand that the drains of cottage houses with only a w.c. in the yard should be ventilated according to the bye-laws. In occupied houses there is very little difficulty in persuading the owner to carry out the work in a proper manner when the advantages thereof are explained to him. The cost of the extra shaft asked for by the Sanitary Department would only be a few shillings.

C.—WATER SUPPLY.

The water supply continues as in past years, being delivered by the Fylde Water Company in a varying condition. Sometimes the water flows from the taps in a very turbid condition, at other times fairly clear, but always containing a certain amount of suspended vegetable matter, due to a portion of the water not being filtered, and also to the deposit in the mains from past neglect, being stirred up by the flow of water. New filter beds are being constructed but are not yet in use. The farms at Warbreck are still without a proper water supply, and in dry weather there is very great scarcity of water in that neighbourhood. It is disgraceful that such a state should continue any longer.

D.—REMOVAL AND DISPOSAL OF HOUSEHOLD REFUSE.

The enormous growth of the town has tried this sub-department very severely, and especially by the rapidity with which houses have been erected in unsewered districts, necessitating the construction of cesspools, from which the sewage has had to be carted, and further, there has been the difficulty of disposing of the sewage afterwards. It is to be hoped that the pumping stations and the pumps will be at work pumping sewage out of the sewers already laid, before many months elapse.

BOROUGH OF BLACKPOOL.—Inquiry into the Administration of Building Bye-Laws.

INQUIRIES.	REPLIES.			
NAME OF BOROUGH.	County Borough of Salford.	Eastbourne.	City of Manchester.	Bolton.
Population	Estimated to middle of 1897 —213,100	43,000	Estimated to middle of 1897—536,426	121,433
Rateable value.	1896-7, £835,454	£268,248	£2,043,545	£460,396 17s 6d
Have you any Bye-Laws with respect to New Streets and Buildings in force in your Borough? If so, kindly forward a copy.	No bye-laws, only regulations We work under the Private Acts of Parliament, which we are seeking to amend in the present Session	Yes, copy forwarded herewith	Copy of building bye-laws herewith	Copy enclosed
Have you any special provisions in private Acts with respect to New Buildings?	Copy of Building Regulations and proposed amendments enclosed	Provisions in Eastbourne Improvement Acts, 1879 and 1885. Extracts referring to buildings bound in volume with bye-laws	Yes See Acts of Parliament attached to the building bye-laws	Yes Bye-laws
Do you insist upon the site of a domestic Building being asphalted or concreted in accordance with Bye-law 10 of the Model Bye-laws, and drains being laid upon a bed of concrete as specified in Bye-law 62?	We are seeking this power in the Bill for this Session	Yes Yes	See bye-laws Nos. 6 and 7 No	No
If you have Bye-laws in force similar to the Model Bye-laws of the L.G.B., have clay-puddle joints been considered by your authority as satisfying the expression "water-tight, socketted, or other suitable joints?"	We do not consider clay to be water-tight, and are enforcing cement joints	Clay puddle joints are not allowed, being liable to be washed out and roots of trees finding their way in. Drain pipes are all jointed with Portland Cement and twice water tested, once when first laid and exposed, again after the trenches are filled up	Clay puddle joints are not considered satisfactory	We now insist on cement joints
Are clay-puddle joints ever allowed in your district in the drains of (*a*) new houses, (*b*) old houses?	Not now	Never under any circumstances	No	Not now
(*a*) Do you test the drains of new houses by the smoke or hydraulic test, or by both? (*b*) Are the drains tested by hydraulic test before being covered up? (*c*) Whose apparatus is used?	(*a*) By smoke (*b*) Yes, by smoke (*c*) Smoke testing machine of Messrs. Burn Brothers, Edinburgh	Hydraulic test, both before and after covering up. A smoke machine is used for testing soil and ventilating pipes and old drains when defects are suspended	(*a*) Hydraulic test is applied (*b*) Yes (*c*) Jones's, Chelsea	No, but all drains are required to be kept uncovered until examined by the Building Surveyor
Is a certificate of fitness of habitation given, and if so by whom?	By the Medical Officer of Health and Borough Engineer jointly	Yes, by the Borough Building Surveyor	Yes By the City Surveyor	Borough Surveyor
Have you a staff for testing drains of new houses, and if so what is (*a*) number of men, and (*b*) annual cost?	Yes (*a*) Six (*b*) £388 9s. 0d.	It is one of the duties of the Building Surveyor, who is assisted by the builders men, who provide plugs, smoke machines, etc	This work is done by the Paving and Sewering Committee's staff	No
Have you a staff of drain-testers for the drains of old houses?	Yes, included in above	The drains of old houses are tested by the Sanitary Inspectors, assisted by one or two Corporation workmen if necessary	The District Sanitary Inspectors test the drains of old houses	No
Under the supervision of which official are the drain-testers placed?	Under the Medical Officer of Health Two Sanitary Inspectors are employed, one in superintending the testing of drains in the first instance, the other in the testing of the drains of new houses, & drainage in the course of reconstruction	The Building Surveyor for new houses. Sanitary Inspector and Medical Officer of Health for old houses	Sanitary Superintendent for old houses	......
With respect to the drains of (*a*) new houses and (*b*) old houses, is the Surveyor or Medical Officer of Health, or Sanitary Inspector made responsible? Kindly state if there is any dual control, where the line of demarcation is made.	In regard to new houses the Medical Officer of Health, and the Borough Engineer's Department jointly test the drains, but with regard to the old houses the Medical Officer of Health's department only have control.	The Building Surveyor is responsible for drainage of new houses and old houses where the work is done voluntarily. The M.O.H. and Inspectors for re-drainage of old houses where notices have been served. There are also "Sanitary Certificates" granted for both new and old houses for which a higher standard of excellence is required; these are issued and signed by the M.O.H. only, and the necessary work done to obtain them is under the M.O.H. and Sanitary Inspectors in the case of old houses. In new houses the M.O.H. accepts the Building Surveyor's testing, and can insist on a fresh test if he likes, also makes one personal inspection himself	Sanitary Department responsible for drains of old houses	(*a*) New Houses—Borough Surveyor (*b*) Old houses—Med. Off. of Health
REMARKS	......	......	......	......

INQUIRIES.	REPLIES.				
NAME OF BOROUGH.	Hastings.	City of Birmingham.	Glasgow.	Brighton.	Bournemouth.
Population	Standing 58,000 Visitors 15,000	1896 501,241	714,919	121,401	48,000
Rateable value.	£374,170	£2 217,392	Gross annual value, £4,432, 577	£751,309 5 0	£370,000
Have you any Bye-Laws with respect to New Streets and Buildings in force in your Borough? If so, kindly forward a copy.	Yes	Copy forwarded	Yes. Copy of Building Regulations Act with relative bye-laws herewith	Yes. Copy sent	Yes. Copy herewith
Have you any special provisions in private Acts with respect to New Buildings?	Yes, in Hastings Improvement Act	Yes. Birmingham Corporation (Consolidation) Act	Yes. See Act and bye-laws	Yes. See Building Bye-laws above; also Brighton Improvement Act, 1896	*Vide* Bournemouth Improvement Act, 1892. Copy herewith
Do you insist upon the site of a domestic Building being asphalted or concreted in accordance with Bye-law 10 of the Model Bye-laws, and drains being laid upon a bed of concrete as specified in Bye-law 62?	Not in all cases. Drains have to be laid and covered with concrete	See Bye Law 6 Only in cases of faulty ground	Yes. See Bye-law 7, page 72	Yes. Excepting where subsoil is chalk or comb rock. See Bye-laws Nos. 16 & 17 Yes All laid & embedded in concrete	Yes, whenever the nature of the subsoil renders it necessary
If you have Bye-laws in force similar to the Model Bye-laws of the L.G.B., have clay-puddle joints been considered by your authority as satisfying the expression "water-tight, socketted, or other suitable joints?"	Certainly not	All joints are now made in cement, and deep socketted pipes are frequently used	Clay joints not allowed See Bye-law 58, page 85	No. Drains must be securely jointed with cement; if stoneware pipes are used they must be caulked with lead	Bye-laws in force Clay puddle joints not considered satisfactory
Are clay-puddle joints ever allowed in your district in the drains of (*a*) new houses, (*b*) old houses?	On no account	No	No Not allowed	No	No
(*a*) Do you test the drains of new houses by the smoke or hydraulic test, or by both? (*b*) Are the drains tested by hydraulic test before being covered up? (*c*) Whose apparatus is used?	Hydraulic tested when laid and after the trench is filled in	Public and important buildings. Horizontal pipes are tested by water; vertical pipes by smoke. Watts & Co., Bristol	Smoke test only. Hydraulic test not in use here. Fyfe & Dobson's Patent	(*a*) Smoke and Hydraulic (*b*) Yes (*c*) No special make	Yes. We use the smoke test in the majority of cases, the water test when the drains pass under houses
Is a certificate of fitness of habitation given, and if so by whom?	Yes, by Borough Engineer	No	See Section 47, page 32. By Sanitary Inspector of city	Not given	Yes, if required by owner on completion. Special Sanitary Certificates are given at a charge of £1 1s.
Have you a staff for testing drains of new houses, and if so what is (*a*) number of men, and (*b*) annual cost?	Yes Two Inspectors £2 and 37/- a week each	No testing; where necessary done by drainage inspectors	Drains are tested by the Assistant Sanitary Inspectors in their respective districts. A lad to work the machine is attached to each of the 7 districts of the city. Both old and new drains are tested by the Sanitary Inspectors. Wages of the 7 lads per annum about £300 Machines, repairs, and sundries, £98 per annum	No special staff. The work is done by the Drainage Inspector and some of his workmen. The cost depends upon how many tests are made	Yes. Two men Building Inspector & another
Have you a staff of drain-testers for the drains of old houses?	No	The work is done by Sanitary inspectors		No. See reply to above	Yes. This is generally done in the Sanitary Department
Under the supervision of which official are the drain-testers placed?	Borough Engineer	......	Chief Sanitary Inspector	The Borough Surveyor, except in cases as given in the following reply	For new houses in course of erection, the Surveyor's Department; for all others the Sanitary Department
With respect to the drains of (*a*) new houses and (*b*) old houses, is the Surveyor or Medical Officer of Health, or Sanitary Inspector made responsible? Kindly state if there is any dual control, where the line of demarcation is made.	New houses, Borough Engineer. Old houses, Sanitary Department, and all works of redrainage under Borough Engineer	The City Surveyor for new houses; the Inspector of Nuisances for old houses	With respect to drains of new houses, the Master of Works, that is Surveyor, is responsible; but new drains are tested by Sanitary department. Drains of old houses are dealt with entirely by Sanitary Inspector, Medical Officer has nothing to do with them	The Borough Surveyor tests the drains of all new houses, and all new drains placed in old houses, where plans are deposited for relaying them. In all other cases the testing is done by the Sanitary Department	The Surveyor in his Department (for new houses). The Sanitary inspector in his Department (for old houses)
REMARKS	......	......	The Model Bye-laws of the Local Government Board are not in operation here	......	

INQUIRIES.	REPLIES.					
NAME OF BOROUGH.	Southport.	Bath.	Cheltenham.	Leamington.	Wigan.	Blackpool.
Population	1897. 48,445	1891 51,844	49,000	27,000	Estimated 60,250	1897—Estimated 40,300.
Rateable value.	1896-7. £299,831	£301,000	£270,312	£168,000	£188,804	......
Have you any Bye-Laws with respect to New Streets and Buildings in force in your Borough? If so, kindly forward a copy.	Yes	Yes, but dating from 1869. A new code based largely on Model Bye-Laws of Local Government Board is under consideration	Forwarded	Yes	Yes	Yes
Have you any special provisions in private Acts with respect to New Buildings?	Yes	No private act relating to new buildings	Yes. As to height of buildings, means of ingress and egress of places of public resort. Approval of Plans, altering line of streets, &c.	Very little	The only special provision in Local Acts is as to the paving, flagging, or asphalting of back yards of houses	Yes
Do you insist upon the site of a domestic Building being asphalted or concreted in accordance with Bye-law 10 of the Model Bye-laws, and drains being laid upon a bed of concrete as specified in Bye-law 62?	As regards part 1 of this question, not unless in the opinion of the Surveyor this is necessary, on account of dampness of the site. Drains are not required to be laid upon a bed of concrete unless they pass under a building, and then they must be of iron with leaded joints.	No existing powers except for the drainage of sub-soil. Drains are to be constructed in whatever manner the Authority may prescribe.	Yes. See Bye-Laws, Sec. 8	No. If under a house we compel drains to be laid in concrete, not only on it	No	No
If you have Bye-laws in force similar to the Model Bye-laws of the L.G.B., have clay-puddle joints been considered by your authority as satisfying the expression "water-tight, socketted, or other suitable joints?"	Our Building Bye-laws are framed upon the Local Government Board Model Bye-laws. Clay puddle joints in drains are not allowed in any case. All our drains are glazed pipes socketted and made water-tight with **cement.**	Our regulations (copy enclosed) specify joints to be of the best neat Portland Cement	Clay puddle joints are not taken to satisfy this expression	Our Bye-Laws compel people not only to joint pipes with clay puddle, but also to surround the pipes with 6 inches of puddle for their entire length	Yes	Yes
Are clay-puddle joints ever allowed in your district in the drains of (*a*) new houses, (*b*) old houses?	Neither in old or new. If found in old premises the owner has to re-drain according to present regulations.	In neither instance	Never allowed in new houses now. Not in re-draining old houses	Yes. If not *under* a house	Yes. Both old and new houses	(*a*) Yes (*b*) No
(*a*) Do you test the drains of new houses by the smoke or hydraulic test, or by both? (*b*) Are the drains tested by hydraulic test before being covered up? (*c*) Whose apparatus is used?	The smoke test is used. No apparatus but "Rockets."	Both methods (see regulations). Yes Watt's "Asphyxiator" for smoke test	All new drains tested by hydraulic test before being covered up. Soil pipes by smoke from "Eclipse" smoke machine, the top of the pipe being stopped and smoke pumped into drain	We only inspect, but do that thoroughly	No	By smoke-test only. Watts "Asphyxiator," Bristol
Is a certificate of fitness of habitation given, and if so by whom?	Yes, by the Surveyor	Yes, by City Surveyor on completion of a new building not as to drainage alone	No Certificate given, but plans carefully examined and Inspector instructed to see them carried out in every detail	By Borough Engineer	Yes, By Borough Surveyor	Yes. By Borough Surveyor.
Have you a staff for testing drains of new houses, and if so what is (*a*) number of men, and (*b*) annual cost?	No separate staff	One Inspector and one or more men as required. Occupies only a part of his time. Cannot say cost	New house drains tested by one man; assistant of Borough Surveyor. Not sufficient in number here to occupy much of his time	We only *test old* drains; and that only when they be under suspicion	The drains of new houses are inspected before being covered up, by the foreman of the Sewerage Department, acting under the instructions of the Borough Surveyor	Yes. (*a*) 5 men (*b*) £282 About half of time is taken up in testing new houses
Have you a staff of drain-testers for the drains of old houses?	No separate staff	These are only tested by same staff as for new buildings, when a plan has been deposited for approval of new or altered lines, City Surveyor	No. Done by the Chief Inspector of Nuisances	Not special. Any of our men do it under the supervision of the Sanitary Inspector	This work is done by the Sanitary staff	Yes. Same as for new house
Under the supervision of which official are the drain-testers placed?	The tests when deemed necessary are made by the Highway and Health Committee's staff, as occasion may require, generally jointly				Chief Sanitary Inspector	Medical Officer of Health.
With respect to the drains of (*a*) new houses and (*b*) old houses, is the Surveyor or Medical Officer of Health, or Sanitary Inspector made responsible? Kindly state if there is any dual control, where the line of demarcation is made.	The Surveyor is responsible for the construction of all new drains. As regards old drains found on inspection to be defective, an order is made to alter, repair, or re-drain on the advice of the M.O.H. sometimes assisted by the Surveyor, and there is an Inspector of Works, ordered by the Health Committee, who is paid partly by the Highway and partly by the Health Committee, and who is responsible to the M.O.H. and the Surveyor for carrying out the Health Committee's order.	No responsibility or dual control. Drains are only tested with the view of satisfying the City Surveyor as to their soundness before he permits them to be covered up or the house occupied	New houses under Surveyor. Old houses done by Chief Inspector under M.O.H. The Inspectors here are placed under M.O.H. by a Minute of Council. This wouldn't be pleasant for M.O.H. if Inspector untrustworthy	Borough Engineer and Surveyor for new houses, M.O.H. and Sanitary Inspector for all old houses	(*a*) Surveyor. (*b*) M.O.H. and inspector; in the latter there is no line of demarcation	(*a*) Surveyor for new houses (*b*) Medical Officer of Health for unoccupied houses
REMARKS	Speaking generally, the Surveyor is responsible for proper work and materials. The M.O.H. for the method, plan, or principle, in re-drainages.	Medical Officer of Health is not debarred from private practice. Recently appointed	In my opinion the Sanitary arrangements of new houses ought to be inspected by Inspector from Health Department, and a Certificate of fitness given by the Chief Inspector or M.O.H.	In doubtful ground I consider puddle preferable to concrete and cement joints, both the latter being brittle. On a good bottom cement joints are doubtless good. But cement is not safe if there is any chance of settlement	......	......

SUMMARY OF WORK DONE.

	1895.	1896.	Increase.
Ashtubs emptied	364,356	402,430	38,074
Ashpits do.			
Ordinary	1,581	1,642	61
Modified	4,557	4,711	154
Ashpits (total)	6,138	6,353	215
Cesspools emptied	542	1,440	898
Pail closets (emptied weekly)	3,671	6,810	3,139
Privies (in rural portions of the borough)	1,885	2,379	494

The number of ashtubs, privies, &c, in the borough on December 31st were as follows :—

	1895.	1896.	Increase or Decrease.
Ashtubs	6,266	7,505	† 1,239
Ashpits, ordinary	280	250	— 30
Do modified	223	270	† 47
Privies	255	124	— 40
Cesspools		91	
Pail-closets	97	230	† 133

The sign † means increase, and — decrease in this and the following table.

The refuse carted was disposed of as follows :—

	1895.	1896.	Increase or Decrease.
Loads of refuse carted to the Destructor	17,263	19,857	† 2,594
Do. do. tip	792	678	— 114
Do. do. oyster shell heap	87	120	† 33
Do. do. on land in rural parts of the borough	1,339	1,874	† 535
Total loads of refuse carted	19,481	22,529	† 3,048
Do coke do. to cremators	561	599	† 38
Total loads of refuse and coke	20,042	23,128	† 3,086

The increase of loads tipped on land is due to the sewage from cesspools being disposed of on land or anywhere else it is possible to get rid of it.

For the financial year ending March 25th, 1897, the cost of emptying ashpits was £3,347, *i.e.*, per inhabited house of 8s 10·17d. as compared with 9s. 0·18 in 1895

The number of loads of refuse and coke carted in the financial year was 23,940, that is 2s 9·55d. per load, as compared with 2s. 10·6d. per load in 1895.

The cost of the refuse destructor during the financial year, including interest and sinking fund, was £2,091, and the loads burnt were 19,699, at a cost of 2s. 1·47d. per load consumed, as compared with 2s 0·7d in 1895.

E.—THE PUBLIC SLAUGHTERHOUSE.

During the year the following animals have been slaughtered in the slaughterhouses of the Corporation :—

Beasts—Cows	176	
Heifers	714	
Bullocks	116	
Bulls	1	
		1,007
Calves		444
Sheep		17,795
Pigs		1,552
Total		20,798

The livers of 173 animals – 130 sheep, 27 heifers, 6 bullocks, 6 cows. and 4 beasts not more fully described – were affected with "flukes," and were destroyed.

The animals affected with tuberculosis in various degrees were found to be 6 pigs, 8 cows, and 3 heifers

Of these the carcase of one heifer, weighing 491lbs. was destroyed by consent of the owner.

The viscera of one heifer, extensively affected with tuberculosis, were condemned by the magistrates, but not any portion of the carcass.

In the case of a cow, the owner consented to the destruction of the viscera and 40lbs. of the flesh. In two other cases in cows, the ribs were removed, by consent, and destroyed. A similar procedure was adopted in the carcase of one of the pigs. But in every one of the cases the viscera were given up by the owner, and the carcase was dressed to my satisfaction under the superintendence of the caretaker, by removing all the lymphatic glands, and all naked eye appearance of the disease. But still I maintain that it is a fraud on the public, and also fraught with a certain degree of danger to allow meat from such diseased animals to be sold as first-class meat, and without the public being aware of its nature. The sooner the present strained position of meat inspection is altered, and placed on a more reasonable basis, the better it will be for the consumers, and it is to be hoped that the Tuberculosis Commission, now sitting, will have some practical recommendations to offer, so that meat from diseased animals, if allowed to be consumed, can only be passed into the market under certain conditions, and that if meat is seized the loss should fall on the right shoulders

The liver of a bullock with a few abscesses in it was destroyed, and also those of two pigs affected with cirrhosis.

One sheep affected with a parasitic skin disease was given up to be destroyed. Portions of a pig, weighing 60lbs, which was found to have suffered from enteritis were seized. The viscera, glands, and kidneys of a sheep which had a hydatidiform disease in the liver, were destroyed The carcases of 2 pigs, 2 sheep, and 5 lambs which were either suffocated in transit or found dead in the pens or field, were destroyed. Meat which went bad before removal from the slaughter-house, was seized to the following amounts: 14lbs. of beef, 34lbs of mutton, and 57lbs of lamb, besides a few minor portions of the carcass

At the present time six of the ten slaughter-houses are let to the following butchers :—Messrs. Robotham, Thomas, Harrison, Bridge, Hull, Sowerby, Rainford, Wilkinson, and Cocker, and the Co-operative Society.

The public slaughter-house is regularly used by Messrs. Braithwaite, Barlow, Turner, Waring, Rigby, Smith, Robert Hull, Noble, and Salmon, besides a few others who make use of it occasionally.

The pig slaughter-house is used regularly by Messrs. Robinson, Hornung, Walker, and Priestley, and the Co-operative Society.

The public have now the satisfaction of knowing that the above-mentioned firms so conduct their business that both the animals and their carcases are subject to the inspection of public officials in every case. When extra provision for the lairage of beasts is provided it will be necessary to close the remaining private slaughter-houses in the Borough, which are generally in a disgraceful condition.

F.—SEWERS AND SEWAGE DISPOSAL.

The drains of the houses at Little Layton are now attached to the sewer, with a great improvement to the sanitary condition of that district.

By the end of the present year it is to be hoped that most of the houses in Middle Lane, Cow Gap Lane, Benson's Lane, Hawes Side, &c., will be attached to the new sewer and the pumping stations in use.

In the section devoted to enteric fever I have mentioned the dangers arising from the present sewage outfall, dangers increasing with the growth of the town and the increased volume of sewage thrown out into the sea. This question of sewage disposal will require to be faced before long, but at present and in the light of my present knowledge, I incline to the plan of carrying out the present outfall further into the sea, and, in fact, as far as is reasonably practicable, both from engineering and financial points of view.

At the same time, all sources of pollution from the stream known as Spen Dyke should be avoided, and in my opinion its outlet should be removed from the foot of the hulking to some distance on the sands.

I must, again, allude to the necessity for the provision of automatic flushing tanks, especially at the dead ends of branch sewers in the back streets, which are very liable to become specially foul.

G.—BATHS AND WASH-HOUSES.

In my last report, I brought forward the subject of the provision of public baths, under the Baths and Wash-houses Act. I then advocated that one or more cottages be bought or rented in a suitable locality, say in the neighbourhood of Larkhill, and fitted up with a small number of baths. This would be an experiment on a small scale, and by no means a costly one. Nothing has been done on this subject since my previous report.

RECOMMENDATIONS.

(i) That the sewer outfall be carried out into deeper water.

(ii) That the outlet of Spen Dyke be carried sea-wards from the foot of the hulking.

(iii) That the mussels growing on the jetties be removed and destroyed.

(iv) That plans be got out for enlarging the Infectious Diseases Hospital, and improving the accommodation for suspicious cases of infectious disease, and for discharging patients.

(v) That the question of making other provision than the Old Sanatorium for small-pox cases, be thoroughly discussed.

(vi) That the joints of all drains, whether new or old houses, be required to be made of such materials, and in such a manner, that they will withstand the water test, both when bare and when covered in.

(vii) That the ground or basement floor, or the ground beneath such, be required to be cemented, asphalted, &c, in accordance with the bye-law in that behalf, and

(viii) That automatic flushing tanks be provided at the dead ends of the branch sewers.

(ix) That public baths be provided for the use of the inhabitants.

IV.—METEOROLOGY.

The observations have been carefully taken by Mr. T. Sanderson, Sanitary Inspector. During the season, telegraphic messages of the state of the weather were sent each forenoon to the "Sheffield Daily Telegraph," and to the "Manchester Evening News."

The equipment of the department consists of—

(i.) A Standard Fortin barometer kept in the Health Office.

(ii.) A Stevenson-screen containing wet and dry bulb and maximum and minimum thermometers.

(iii.) An earth thermometer at a depth of four feet.

(iv.) A rain gauge.

(v.) A Campbell-Stokes Sunshine Recorder, a wind vane, and an anemometer on the North Pier.

The Stevenson-screen with the thermometers and rain gauge are kept at the Infectious Diseases Hospital. The tables at the end of the report give the result of the observations for the year. I append here a short summary of the weather for each month of the year. The observations are taken daily at 9 a.m.

Through the sunshine-recorder being out of adjustment, I have got no record of the bright sunshine for December 1896 ; but I have ventured to include the amount of sunshine recorded at Stonyhurst for that period, as an approximation to the true value for Blackpool.

January was a warmer and finer month than usual, but the weather was more overcast ; bright sunshine being about 25 per cent. below the average. The mean pressure was high, but the range of the barometer was greater than usual, due to a cyclonic depression on the 14th. The average temperature was 3·5 degrees above the average, and the rainfall below. The temperature was nearly 1 degree above that of Manchester and Stonyhurst.

February had a high barometric reading, with a temperature about 0·90 degrees above the average, and exactly the same as in Manchester and Stonyhurst. The rainfall was 0·76in. below the average, and the bright sunshine 33 per cent below.

March was an unsettled month with frequent falls of rain. The barometric pressure was below, and the temperature 1·8 degrees above the average. The temperature was slightly higher than at Stonyhurst or Manchester. The rainfall was 1·45 inches above the average, rain falling on 24 days out of the 31. The bright sunshine was practically equal to the average.

April was a brighter month than usual. The barometric pressure and temperature were above the average, whilst the rainfall was below. The bright sunshine was about 15 per cent. above the average for 1885-94.

May was a bright dry month. The temperature wae 2·6 above the average ; and the rainfall, which was only half an inch, was 1·52 inches below the normal. Bright sunshine was greatly in excess.

June.—The weather was unsettled, but it was on the whole a bright warm month. The temperature was 4 degrees above the average, with about 10 hours more bright sunshine. The rainfall was only 0·17 inches in excess o the average.

July was on the whole a fine month. There were 10 rainy days, with a rainfall of 1·23 inches on the 9th. The rainfall was 4·15 inches, or 1 inch above the average. The temperature and bright sunshine were slightly above the usual figures.

August, in the earlier part, was fine and dry. The pressure was lighter than usual, whilst the temperature was 1·7 degrees lower. The rainfall was 0·71 inches below the average, but the sunshine was nearly the same.

September was a wet dull month. The barometric pressure was low, but the temperature 1·1 degrees above the average, and was 1·4 degrees above that of Manchester. Rain fell on 21 days, to the amount of 5·55 inches, or 1·93 inches above the average. Bright sunshine was about 38 per cent. below the average amount.

October was cold and changeable with frequent rain. Pressure and temperature were low, the latter being 4 degrees below the average. Rain fell on 21 days, and was slightly above the usual amount. Sunshine was deficient in amount.

November was a cold month, but brighter than usual. Pressure was high, but temperature was 2·6 degrees below the average, however it was about 1 degree higher than Stonyhurst or Manchester. Rain only fell on 8 days, and was 1·85 inches below the usual quantity. Bright sunshine was about 30 per cent. above the average.

December was a changeable dull month. The temperature was about the average. Rain was 0·64 inches above, and fell on 20 days.

Appendix, Tables, &c.,

TABLE A (Local Government Board Return).

TABLE OF DEATHS during the year 1896 in the Borough of Blackpool, classified according to Diseases, Ages, and Localities.

Names of Localities.	Mortality from all causes at subjoined ages.								Mortality from subjoined causes, distinguishing Deaths of Children under 5 years of age.				Fevers.																	
	At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.		Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	Whooping Cough	Diarrhœa and Dysentery.	Rheumatic Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.	Total.
a	b	c	d	e	f	g	h	i	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Claremont Ward	79	20	5	3	2	32	17	Under 5	......	......	......	1	......	......	......	......	......	......	......	......	......	4	....	......	1	2	......	......	17	25
								5 upwards	......	......	......	......	......	......	......	......	1	......	......	......	......	......	2	......	5	5	11	2	28	54
Talbot Ward	178	43	13	10	7	75	30	Under 5	......	......	......	2	......	......	......	......	......	......	......	......	3	9	......	......	1	8	......	1	32	56
								5 upwards	......	1	......	......	......	4	......	......	......	......	1	......	......	1	1	......	12	21	17	4	60	122
Bank Hey Ward	36	11	2	...	1	16	6	Under 5	......	......	......	......	......	......	......	......	......	......	......	1	1	1	......	......	......	2	......	1	7	13
								5 upwards	......	......	......	......	......	......	.....	......	......	......	......	......	......	1	......	......	1	2	2	......	17	23
Brunswick Ward	107	23	9	6	3	39	27	Under 5	......	2	1	......	......	......	......	......	......	......	......	1	......	5	......	......	......	9	....	......	14	32
								5 upwards	......	1	......	......	......	[illegible]	......	......	......	......	......	......	......	2	1	......	5	21	[illegible]	3	33	75
Foxhall Ward	147	43	19	3	5	50	27	Under 5	......	2	......	1	......	......	......	......	......	......	......	2	4	5	......	......	......	11	......	2	35	62
								5 upwards	......	1	......	......	......	6	......	......	......	......	1	......	......	2	......	......	12	18	6	3	36	85
Waterloo Ward	73	8	10	5	...	26	24	Under 5	......	1	......	......	......	......	......	......	......	......	......	......	......	2	......	......	......	2	......	......	13	18
								5 upwards	......	1	......	1	......	2	......	......	......	......	1	......	......	1	......	......	2	9	8	......	30	55
Kirkham Workhouse (not in the Borough)	9	1	....	......	1	4	3	Under 5	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	1	1
								5 upwards	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	2	2	1	......	3	8
Totals	629	149	58	27	19	242	134	Under 5	......	5	1	4	......	......	......	......	......	......	......	4	8	26	...	......	2	34	......	4	119	207
								5 upwards	....	4	......	1	......	13	......	......	1	......	3	......	......	7	4	......	39	78	53	12	207	422

The subjoined numbers have also to be taken into account in judging of the above records of mortality.

Deaths occurring outside the district among persons belonging thereto in Kirkham Workhouse and elsewhere.	10	1	......	......	2	4	3	Under 5	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	1	1
								5 upwards	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	3	2	1	......	3	9
Deaths occurring within the district among persons belonging not thereto.	123	12	13	3	7	71	17	Under 5	......	......	......	......	......	......	......	......	......	......	......	2	......	4	......	......	......	2	......	2	15	25
								5 upwards	......	......	......	......	......	2	......	......	......	......	......	......	......	4	......	......	14	13	10	7	48	98

TABLE B (Local Government Board Return).

Table of Population, Births, and of New Cases of Infectious Sickness, coming to knowledge of the Medical Officer of Health, during the year 1896. in the Borough of Blackpool, classified according to Diseases, Ages, and Localities.

Names of Localities.	Population at all ages.		Registered Births.	Aged under 5 or over 5.	New Cases of Sickness in each Locality, coming to the knowledge of the Medical Officer of Health.													Number of such Cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital.											
									Fevers.													Fevers.							
	Census, 1891.	Estimated to middle of 1896.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	Rötheln.	Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.
a	*b*	*c*	*d*	*e*	1	2	3	4	5	6	7	8	9	10	11	12	13	1	2	3	4	5	6	7	8	9	10	11	12
Claremont Ward	3464	5521	140	Under 5	...	7	1	...	...	...	...	...	...	...	...	2	...	...	7	1	...	...	...	...	...	...	...	...	...
				5 upwards	...	22	...	...	...	4	...	...	1	...	...	3	...	...	17	...	...	...	2	...	...	...	...	...	1
Talbot Ward (H)	6390	9102	295	Under 5	...	17	1	...	...	1	...	...	...	...	...	8	...	...	16	1	...	...	...	...	...	...	...	...	1
				5 upwards	...	43	...	...	...	18	...	...	...	...	...	5	...	...	38	...	...	...	10	...	...	...	...	...	...
Bank Hey Ward	2036	2291	36	Under 5	...	3	...	...	...	...	...	...	...	...	...	2	...	...	2	...	...	...	...	...	...	...	...	...	...
				5 upwards	...	8	1	...	...	5	...	...	...	...	...	1	...	...	3	1	...	...	1	...	...	...	...	...	...
Brunswick Ward	4095	5881	125	Under 5	...	8	1	...	...	1	...	...	...	...	...	19	...	...	5	1	...	...	1	...	...	...	...	...	2
				5 upwards	...	25	...	...	...	14	...	...	...	...	...	9	1	...	24	...	...	...	11	...	...	...	...	...	2
Foxhall Ward	4905	9208	246	Under 5	...	14	...	...	...	1	...	...	...	...	...	36	...	...	9	...	...	...	...	...	...	...	...	...	1
				5 upwards	...	34	...	...	...	15	...	...	...	...	...	32	1	...	22	...	...	...	7	...	...	...	...	...	1
Waterloo Ward	2956	4635	88	Under 5	...	8	1	...	...	1	...	...	...	...	...	7	...	...	4	1	...	...	...	...	...	...	...	...	...
				4 upwards	...	19	1	...	...	6	...	...	...	...	...	24	...	...	13	1	...	...	3	...	...	...	...	...	1
Kirkham Workhouse (not in the Borough)	...	...	10	Under 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
				5 upwards	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	23846	36638	940	Under 5	...	57	4	...	...	4	...	...	...	...	...	74	...	...	43	4	...	...	1	...	...	...	...	...	4
				5 upwards	...	151	2	...	...	62	...	...	1	...	...	74	2	...	117	2	...	...	34	...	...	...	...	...	5

Infectious Diseases Hospital situated in the Ward marked (H).

TABLE C.

Population and Death Rates (Residents) at Various Ages.

	Blackpool, 1896.									Engl'nd and Wales 1881-90	Engl'nd and Wales 1881-90
	Per cent. of population living at various ages.		Number estimated living in 1896.		Total Deaths.		Death Rate.		Death Rates of persons at different ages.	Death Rates of males living at different ages.	Death Rates of females living at different ages.
	Males	Females	Males	Females	Males.	Females	Males.	Females			
Under 5 years ..	4·62	5·33	1,693	1,953	88	94	51·99	48·14	49·92	61·59	51·95
5 and under 25...	17·30	22·18	6,338	8,126	16	21	2 52	2·58	2·55	4·54	4·56
25 and under 65.	19·10	27·50	6,998	10,075	88	83	12·58	8 23	10·02	15·19	12·92
65 and under 75..	1·29	1·87	473	685	29	51	61·36	74·44	69·08	70.39	60·36
75 years and over	0·34	0·47	125	172	20	17	160·2	98·72	124·58	163·05	148·06

TABLE D.

Analysis of Mortality.

Average of	Birth Rate.	Annual Rate of Mortality from						Proportion of Deaths under 1 year to 1,000 births (Infant Mortality).	Percentage of Total Deaths						
		All Causes (gross D.R.)	All Causes (Corrected for Visitors.)	Seven principal Zymotics.	Pulmonary Consumption.	Other Diseases of the Lungs.	Heart Disease.		Of Infants under 1 year.	Under 5 years.	60 years and over	From seven principal Zymotics.	From Pulmonary Consumption.	From other Lung Diseases.	From Heart Disease
1881-85.	29·56	19·5	17·2	1·89	1·49	3·12	1·70	161	24·44	32·5	23·1	10·16	7·68	15·93	7·61
1886-90.	25·18	17·6	15·4	2·11	1·21	3·19	1·40	150	21·5	34·3	26·8	12·3	6·9	18·3	8·1
1891-95.	23·91	18·6	15·3	2·06	1·14	3·91	1·51	183·3	23·82	33·8	24·9	10·88	6·24	20·74	8·2
1891.	22·36	20·0	18·2	2·03	1·2	5·4	1·6	182	21·5	34·1	27·8	10·2	6·3	27·0	8·1
1892.	24·01	18·2	15·3	0·89	1·2	3·81	1·49	158	20·9	29·3	25·4	4·9	6·7	20·9	8·2
1893.	22·47	18·7	14·9	2·68	0·98	4·14	1·51	210·3	25·1	33·2	24·6	14·1	5·2	22·1	8.0
1894.	23·93	15·8	11·9	1·38	1·08	2·21	1·48	159·7	24·1	33·2	24 5	8·7	6·8	13·9	9·3
1895.	26·77	20·06	16·33	3·31	1·24	3·98	1·43	206	27·49	39·3	21·9	16·47	6·19	19·79	7·10
1896.	25·66	17·19	13·84	19·9	1·15	3·06	1·44	158·5	23·6	32·9	27·5	11·6	6·6	17·7	8·4

TABLE E.

BIRTHS AND DEATHS (RESIDENTS) IN EACH QUARTER OF THE YEAR 1896.

QUARTER ENDING	Births.	Deaths from all Causes.	Seven principal Zymotic Diseases.	Pulmonary Consumption.	Other Lung Diseases.	Heart Disease.	Total Deaths under 1.	Under 5.	65 Years and over.
March 28th.........	201	119	11	8	28	9	25	33	33
June 27th	233	101	10	6	24	10	26	39	19
September 26th...	242	136	25	3	11	13	47	56	30
December 31st ...	264	151	15	11	34	11	39	54	35
TOTALS	940	507	61	28	97	43	137	182	117

TABLE F.

SHEWING THE SEVERAL DEATH RATES (RESIDENTS) FOR EACH QUARTER IN THE YEAR 1896.

QUARTER ENDING.	Death Rate.		Infant Mortality.	Per cent. of Total Deaths, of Deaths.			
	From All Causes.	From 7 Zymotics.		From 7 Zymotics.	Of Infants under 1 year.	Of Children under 5 Years.	Of Persons 65 Years and over.
March 28th ...	13·51	1·249	124	9·2	21·0	27·7	27·7
June 27th......	11·09	1·098	111	9·9	25·7	38·6	18·8
Sept. 26th.	14·93	2·744	194	18·4	34·5	41·1	22·0
December 31st	15·71	1·561	147	9·9	25·8	35·7	23·1

TABLE G.

DEATHS.	1889 Quarters.				Totals.	1890 Quarters.				Totals.	1891 Quarters.				Totals.	1892 Quarters.				Totals.	1893 Quarters.				Totals.	1894 Quarters.				Totals.	1895 Quarters.				Totals.	1896 Quarters.				Totals.
	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	3		1	2	3	4		1	2	3	4	
From all causes...	102	88	124	92	406	110	112	110	119	451	98	158	128	123	507	123	110	131	124	488	116	115	173	128	532	103	124	132	122	481	156	165	179	161	661	133	141	179	177	630
Under 1 year	25	15	38	19	97	27	24	26	30	107	24	23	32	30	109	23	17	27	35	102	29	18	66	21	134	21	29	34	32	116	27	36	71	48	182	26	29	52	42	149
Under 5 years......	39	31	49	28	147	43	37	35	41	156	31	50	45	47	173	31	24	41	47	143	42	26	79	30	177	29	41	43	47	160	46	59	89	66	260	35	47	66	59	207
60 years and over	25	16	31	31	103	33	27	35	34	129	36	33	36	35	140	33	38	22	37	130	27	29	35	40	131	26	30	33	29	118	47	40	26	32	145	45	33	51	44	173
From 7 Zymotics	10	8	19	5	42	14	8	18	7	47	7	4	24	17	52	2	1	11	10	24	10	7	49	9	75	6	6	20	10	42	12	14	58	25	109	1	12	33	17	73
" Pulmonary Consumption	9	8	7	6	30	5	7	7	8	27	5	10	10	7	32	11	5	12	5	33	6	5	9	8	28	9	10	4	10	33	14	11	9	7	41	10	11	6	15	42
" Other Lung Diseases	22	10	10	22	64	29	29	9	28	95	29	68	11	29	137	29	25	17	31	102	43	32	14	29	118	18	14	12	23	67	31	40	26	34	131	30	30	16	36	112
" Heart Disease	11	4	14	10	39	8	13	9	7	37	6	13	11	11	41	10	7	17	6	40	6	19	10	8	43	10	13	13	9	45	12	13	9	13	47	9	14	18	12	53
" 5 Zymotics ...	6	4	8	5	23	13	6	3	......	22	4	1	6	10	21	......	......	3	6	9	5	3	9	8	25	5	4	10	7	26	9	7	5	9	30	8	7	6	11	32
" Diarrhœa	1	1	9	......	11	......	2	14	7	23	......	1	16	7	24	1	......	8	1	10	1	1	38	1	41	......	2	10	1	13	......	2	51	16	69	2	1	25	5	33
" Whooping Cough	3	3	2	......	8	1	......	1	......	2	3	2	2	......	7	1	1	......	3	5	4	3	2	......	9	1	......	......	2	3	3	5	2	......	10	1	4	2	1	8

TABLE H.

Cases of Infectious Disease notified during the years 1887-1896 (inclusive).

Disease.	1887 Quarters.				Totals.	1888 Quarters.				Totals.	1889 Quarters.				Totals.	1890 Quarters.				Totals.	1891 Quarters.				Totals.	1892 Quarters.				Totals.	1893 Quarters.				Totals.	1894 Quarters.				Totals.	1895 Quarters.				Totals.	1896 Quarters.				Totals.
	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4	
Smallpox	...	...	...	...	......	...	...	...	...	......	...	...	...	...	......	...	...	...	...	......	...	...	...	...	......	...	...	...	...	......	...	4	...	2	6	7	8	5	...	20	...	1	7	...	8	...	...	...	...	......
Measles	4	19	13	1	37	6	2	16	64	88	13	26	26	115	180	125	28	17	3	173	10	25	73	138	246	11	6	20	11	48	4	25	88	5	122	2	102	205	11	320	28	20	50	10	108	29	96	19	3	147
Scarlet Fever	17	13	35	28	93	12	14	18	24	68	2	8	12	23	45	11	25	25	8	69	4	7	21	25	57	17	17	10	26	70	13	19	53	45	130	12	20	31	12	75	11	31	46	66	154	37	32	71	68	208
Diphtheria	1	1	4	3	9	16	3	7	6	32	5	7	7	10	29	7	4	4	1	16	4	4	...	1	9	3	2	3	3	11	2	1	6	3	12	5	1	4	1	11	3	6	4	4	17	2	2	2	...	6
Enteric Fever	1	4	10	2	17	4	...	9	43	56	19	7	11	2	39	2	3	18	9	32	9	3	7	10	29	6	4	12	14	36	9	3	15	15	42	5	1	11	43	60	24	13	14	28	79	10	3	13	40	66
Rötheln	...	3	...	...	3	...	...	...	...	......	4	3	2	4	13	1	1	...	...	2	...	...	...	...	......	...	...	1	...	1	...	...	3	...	3	...	6	2	...	8	...	1	...	1	2	...	2	...	...	2
Puerperal Fever	...	...	...	...	......	...	2	...	...	2	...	1	1	2	4	...	1	2	1	4	...	...	...	...	......	...	1	...	...	1	2	1	...	1	4	1	...	...	...	1	...	...	...	1	1	...	...	1	...	1
					159					246					310					296					341					167					319					495					369					430

TABLE K.

	Population.	Rate per 1,000.				Total Births.	Total Deaths.	Infant Mortality per 1,000 Births.
		Births.	Deaths.		Seven Zymotics.			
			Gross.	Corrected.				
1878...	13,000	38·8	21·0	...	5·0	439	274	166
1879...	15,000	36·6	17·8	...	3·06	401	268	122
1880...	15,000	34·0	22·7	...	5·0	510	341	205
1881...	14,229	30·6	18·6	15·8	1·2	436	265	126
1882...	16,000	30·0	22·9	21·0	2·8	480	367	220
1883...	16,000	30·0	19·5	16·6	1·6	480	312	139
1884...	17,212	29·8	19·0	17·1	2·14	513	328	146
1885...	18,031	27·4	17·2	15·2	1·71	494	311	174
1886...	19,550	25·9	18·9	16·5	2·71	508	370	151
1887...	20,380	25·3	16·0	14·0	2·45	516	327	116
1888...	20,540	24·5	15·6	13·2	1·6	504	322	136
1889...	21,661	26·5	18·7	16·5	1·9	575	406	168
1890...	24,312	23·7	18·5	16·5	1·9	577	451	181
1891...	25,310	22·3	20·0	18·2	2·03	566	507	181
1892...	26,740	24·0	18·2	15·2	0·89	642	488	158
1893...	28,389	22·4	18·7	14·8	2·68	638	532	192
1894...	30,337	23·9	15·8	11·9	1·38	726	481	159
1895...	32,943	26·7	20·06	16·33	3·31	882	661	206
1896...	36,638	25·7	17·19	13·84	1·99	940	630	158

TABLE L.

Shewing the Percentage of Total Deaths, of Deaths of Children under 5 Years of Age, and of Persons over 60 Years of Age.

	Total Deaths.	Under 5 Years of Age.	60 and over.	Per cent. of Total Deaths, of Deaths.	
				Under 5 years of Age.	60 and over.
1878 …………	274	103	56	37·8	20·7
1879 …………	268	93	50	34·7	18·6
1880 …………	341	153	59	44·8	17·3
1881 …………	265	80	61	30·1	23·0
1882 …………	367	106	71	28·8	19·3
1883 …………	312	106	76	33·3	24·3
1884 …………	328	101	82	30·7	25·0
1885 …………	311	123	74	39·5	23·7
1886 …………	370	133	89	35·9	24·0
1887 …………	327	107	99	33·0	30·0
1888 …………	322	103	84	32·3	26·0
1889 …………	406	147	93	36·2	22·9
1890 …………	451	156	129	34·5	28·6
1891 …………	507	173	141	34·1	27·8
1892 …………	488	142	130	29·1	26·6
1893 …………	532	177	131	33·2	24·6
1894 …………	481	160	118	33·2	24·5
1895 …………	661	260	145	39·3	21·9
1896 …………	630	207	173	32·9	27·5

METEOROLOGICAL OBSERVATIONS.

Lat.—53° 49′. Long.—5° 3′ W.

	1895.	1896.
Mean Temperature (of Max. and Min. combined)	47·66	48·74
Total Rainfall (in inches)	29·43	32·88

Bright Sunshine	H.	M.
1895	1470	12
1896	1367	22

1896. Month.	Pressure of Atmosphere in month corrected for temp. and press.		Temperature of Air in Month.									Mean Humidity Complete Saturation = 100.	Rainfall.				Bright Sunshine.	Amount of Cloud. 0=clear; 10=overcast 9 a.m.
			Means of				Absolute Extremes of											
	Mean.	Range.	9 a.m.	All highest	All lowest	Daily Range.	Maximum.	Date.	Min.	Date.	Range.		Amount (in inches).	No. of Rainy Days.	Maximum fall in one day.	Date.		
January	30·313	1·747	40·68	45·76	36·37	9·4	52·2	27th	24·8	21st	27·4	89·6	1 37	12	0·48	24th	27·01	7·3
February	30·211	1·140	40·0	45·8	34·9	10·9	53·4	7th	25·8	18th	27·6	89·3	1·48	13	0·31	8th	40·55	7·6
March	29·719	1·690	43·4	48·8	36·9	11·9	56·8	21st	28·8	10th	28·0	85·7	3·58	24	0·47	7th	101·18	7·1
April	30·131	0·824	48·8	53·7	42·6	11·1	61·3	24th	29·5	2nd	31·8	79·9	1·40	16	0·23	10th	165·35	6·3
May	30·272	0·613	55·9	63·0	43·6	19·4	74·0	11th	31·2	1st	42·8	71·5	0·50	5	0·18	19th	274·56	4·3
June	29·929	0·702	62·6	68·3	52·8	15·5	83·0	15th	45·1	2nd	37·9	75·0	2·26	13	0·75	22nd	202·39	5·4
July...........	30·003	0·644	61·9	67·5	52·6	14·9	73·1	11th	43·0	17th	30·1	75·5	4·15	10	1·23	9th	178·0	6·3
August	30·027	0 694	58·2	64·6	51·4	13·2	70·0	1st	42·1	27th	27·9	79·3	2 67	17	0·98	23rd	148·8	7
September	29·694	542	48·1	62·5	50·9	11·6	69·9	10th	39·5	30th	30·4	70·8	5·55	21	0·87	27th	74·0	7
October........	29·725	1·297	44·7	51·0	38·0	13·0	60·8	3rd	28·2	20th	32·6	83·3	4·58	21	0·70	6th	81·0	7
November......	30·136	1·619	40·5	47·0	34·1	12·9	53·4	12th	23·4	30th	30·0	83·4	1·56	8	0·75	7th	57·8	5·5
December......	29·722	1·474	38·9	44·4	33·4	11·0	52·9	30th	25·4	22nd	27·5	90·0	3·78	20	1·07	29th	*17·0 (?)	7·8

* This is the reading for Stonyhurst.

Direction of Wind at Blackpool during 1896.

1896.	N.	N.N.E.	N.E.	E.N.E.	E.	E.S.E.	S.E.	S.S.E.	S.	S.S.W.	S W.	W.S.W.	W.	W.N.W.	N W.	N.N.W.	No of Days in each Month
January	3	1	1	..	3	..	5	..	8	..	..	1	9	..	..	..	31
February	1	..	..	..	7	..	5	..	5	..	4	..	7	..	..	..	29
March	1	..	..	2	2	1	2	..	6	..	1	2	12	..	2	..	31
April	3	..	..	2	..	..	1	..	1	..	..	2	13	4	4	..	30
May	..	..	1	2	3	..	1	...	1	..	1	..	8	3	10	1	31
June	1	..	1	2	..	1	4	..	1	..	5	1	10	1	2	1	30
July	..	..	1	1	2	..	2	1	3	..	1	3	10	1	6	..	31
August	3	..	1	..	2	..	1	1	1	..	..	1	9	2	10	..	31
September ...	1	1	2	2	4	..	3	..	4	..	2	2	7	..	2	..	30
October	2	..	2	4	6	..	3	..	4	..	1	1	5	..	3	..	31
November.....	1	..	2	2	7	..	8	..	1	..	1	3	2	..	2	1	30
December	2	..	..	1	6	4	6	..	..	..	2	1	3	..	6	..	31
Totals	18	2	11	18	42	6	41	2	35	..	18	17	95	11	47	3	366